A brief CBT intervention for depersonalisation disorder in psychosis: Results from a feasibility randomised controlled trial

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Awarding institution:
King's College London

Volume 1

Systematic Review

Empirical Project

Service Evaluation Project

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Thesis submitted in partial fulfilment for the degree of Doctorate of Clinical Psychology

May 2016

Acknowledgements

I would like to acknowledge all the clients who took part in the studies contained in this volume. I appreciate the time they gave and the trust they showed in me. I would particularly like to acknowledge the participants in the empirical project who took a risk in telling me about their experiences with the potential for no definite gain for them other than the opportunity to speak with me.

I would also like to thank all of the clinicians who referred potential participants for the empirical project. In particular, I would like to thank Dr Nadine Keen from the PiCUP clinic who support of the project made it possible.

I am enormously grateful to all of the clinicians and researchers who acted as supervisors to the work contained in this volume: Dr Elaine Hunter, Dr Emmanuelle Peters, Professor Anthony David, Dr Lidia Yaguez and Dr Juliana Onwumere. Particular thanks must go to Dr Elaine Hunter. It has been an enormous privilege to learn from such a great clinician and researcher and an absolute pleasure talking through each of the cases and issues contained in this volume – I have learnt a great deal and thoroughly enjoyed myself along the way! Likewise, I have learnt a great deal from Dr Emmanuelle Peters in terms of the importance of precision in writing and presenting scientific work.

I also must acknowledge the enormous help and support given by Matilda Azis on both the review and the empirical project. It is a massive understatement to say that I could not have completed this work without her calm, reliable and spot on observations and assistance.

Finally, I must acknowledge Jen, who makes this work possible.

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1: A systematic review of the prevalence and impact of depersonalisation in psychosis.

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1.1. Abstract

Depersonalisation is a feeling of profound disconnection from oneself or surroundings including one's body. There is some conceptual overlap between symptoms of depersonalisation and those of psychotic disorders, however diagnostic protocols have precluded the diagnosis of depersonalisation disorder in the context of psychotic conditions considering the former better conceptualised as sequelae of the latter. However there has been a recent interest in depersonalisation in psychosis, perhaps due to the common aetiological factors of trauma and anxiety. In this context, we aimed to review the literature to determine the prevalence of depersonalisation symptoms and depersonalisation disorder in the context of psychosis. MEDLINE, PsycINFO and Web of Science were searched using standardised search terms in January 2016. Sixteen studies were identified, involving 804 participants. Rates of depersonalisation symptoms ranged between 33-100% and threshold for depersonalisation disorder was met in 3.5-54% of participants. When present, depersonalisation symptoms were associated with more severe depression, anxiety and some psychotic symptomatology. Studies included were at some risk of bias, particularly in sample selection and measurement of depersonalisation. While, further rigorous assessment of depersonalisation symptoms in the context of psychosis is required to address methodological concerns, these studies suggest that depersonalisation is present in those with psychotic symptoms and may represent a useful target for intervention.

1.2. Introduction

Dissociation is defined as 'a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behaviour' [1]. Defined in this way, dissociation is a broad term that incorporates a range of phenomena including normal, everyday experiences such as absorption and divided attention, more pathological symptoms such as depersonalisation and amnesia, to levels of impairment seen in diagnostic categories of Dissociative Amnesia and Depersonalisation Disorder (DPD). Using one term to cover such diverse phenomena has led to significant conceptual confusion and a lack of specificity in measurement [2-4] , leading several authors to distinguish two distinct forms of dissociation – detachment and compartmentalisation [2, 5].

Compartmentalisation may be defined as:

> '*a deficit in the ability to deliberately control processes or actions that would normally be amenable to such control… the functions that are no longer amenable to deliberate control and the information associated with them are said to be 'compartmentalised''* [5], p5.

In contrast, detachment may be defined as:

> *'a sense of separation (or 'detachment') from certain aspects of everyday experience, be it their body (as in out-of-body experiences), their sense of self (as in depersonalisation) or the external world (as in derealisation) [5],* p5.

Depersonalisation[1] symptoms typify such detachment phenomena. The defining feature of depersonalisation symptoms is a sense of profound unreality. In contrast to compartmentalisation experiences, individuals who experience depersonalisation symptoms are 'present' but experiencing a given situation as if from a distance. Individuals may describe feeling as if they were living in a dream-like state or as if they were behind a glass wall [6]. Individuals may also experience emotional (both positive and negative affect) or physical numbing, cognitive disturbance (e.g., impaired memory and concentration, mind 'emptiness') or

[1] Recently, the term 'depersonalisation' has been adopted as an umbrella term to cover symptoms of derealisation as evidence suggests a lack of clear distinction between the two [4]. As such, for purposes of simplicity 'depersonalisation' will be used to describe both depersonalisation and derealisation phenomena for the remainder of this paper.

physiological/perceptual disturbances (e.g., feelings of weightlessness, lack of sense of physical boundaries, watching themselves from a distance, loss of recognition of reflection and/or their own voice) [7, 6].

Transient symptoms of depersonalisation are common in the general population [2] and may have an adaptive function [8, 7, 9]. However, for approximately 2% of the general population [2] the experiences are more persistent, frequent and associated with intense distress and functional impairment i.e., Depersonalisation Disorder (DPD). While there are similarities (see below), depersonalisation symptoms are considered distinct from psychotic symptoms as the individual recognises that the experiences are not reality, rather they are able to acknowledge them as a subjective experience [2]. Indeed, current diagnostic protocols prohibit the diagnosis of DPD in the context of other psychiatric disorders, including psychotic conditions [1].

Depersonalisation and psychosis

Psychosis is a generic term used to describe symptoms or experiences where the individual experiences a distortion of reality, such as in the experience of hallucinations and/or delusions. Other psychotic symptoms include: negative symptoms such as affective flattening and a lack of motivation, cognitive and speech disturbances, and in some cases physical symptoms such as catatonia. Diagnoses that fall under the psychosis umbrella include Schizophrenia, Delusional Disorder and Schizoaffective Disorder [1]. A disturbance in the sense of self and one's place in the world is central to phenomenological accounts of psychotic symptoms [10] and as such, there is a conceptual link to symptoms of depersonalisation [11, 12]. Indeed the discussion of the theoretical and conceptual association between depersonalisation, dissociation more broadly, and psychosis has a long history [13, 14]. For example, many have speculated as to whether auditory hallucinations are better conceptualised as dissociative or psychotic, as the individual experiencing hallucinations is experiencing some level of detachment from the outside world. This idea has gained momentum amongst those studying the link between trauma and psychosis [15-17], where dissociation or depersonalisation is proposed as a psychological defence that protects the individual from extreme distress, while undermining their connection with the outside world and therefore impairing reality testing [18, 13].

There are several such theories linking depersonalisation and psychosis. Two extreme positions would propose that each symptom is a manifestation of the other. For example, the most dominant theory, aligned with common diagnostic algorithms, would propose that

depersonalisation in the context of psychosis is merely a manifestation of the psychotic condition. For example, some suggest that depersonalisation is part of the prodromal phase of schizophrenia spectrum conditions [19, 12]. Similarly, others assert that depersonalisation and psychotic symptoms are degrees of the same phenomenon, where a delusional interpretation of the depersonalisation experience is representative of a more profound disturbance [20]. At the other extreme, and as discussed above, some suggest that psychotic phenomenology are in fact dissociated aspects of the self and experience [21, 22, 13, 14].

Alternative theories would fall somewhere in the middle of these two extreme positions. One view is that the two symptom clusters may simply co-exist as comorbid conditions [4]. Another related view is that they may be aetiologically linked. For example, there are clear overlaps between the cognitive models of depersonalisation and positive symptoms of psychosis [23, 6, 24]. Both models emphasise risk and/or maintenance factors of trauma and heightened emotion and the role of negative and disturbing appraisals of experience [25, 26]. In this context, one way of explaining the link between the two is to consider depersonalisation as an 'anomalous' experience in the development and maintenance of positive symptoms of psychosis (see Chapter 2 in this volume for a more detailed discussion). Likewise, as discussed above, depersonalisation may be a cognitive process that undermines an individual's contact with reality, thus conferring vulnerability to psychosis [18, 13].

With the dominance of diagnostic approaches to psychiatric disorders, depersonalisation has been subsumed under the psychotic disorder. However, if one considers the possibility of depersonalisation symptoms as comorbid or aetiologically relevant in the maintenance/development of psychosis, it may be a useful and salient target for intervention [27]. In this context it is important to understand the prevalence of depersonalisation symptoms in those diagnosed with psychotic disorders.

Prevalence of depersonalisation in psychosis

There have been two relevant reviews of the literature. In 2002, Hunter and colleagues [2] reviewed evidence for prevalence of depersonalisation symptoms in student, community and psychiatric samples. Studies of transient symptoms of depersonalisation in student samples suggest lifetime prevalence rates of 26-70%, and 12 month prevalence of 46-70%. Four large scale studies using standardised diagnostic criteria in the UK, USA and Canada suggest prevalence rates of DPD in approximately 2% in the general community, rising to approximately 80% in those diagnosed with panic disorder. However, only three studies were identified that examined rates of DPD in psychosis. These studies suggested that rates of DPD appeared to be

affected by the severity or acuteness of presentation with higher rates amongst inpatients (36%) than outpatients (6.9%). The review highlighted the limitations of the literature at the time, since many studies used non-standardised measures of depersonalisation or generalised measures of dissociation (i.e., the Dissociative Experiences Scale (DES) [3]) that do not distinguish between normative, detachment and compartmentalisation forms of dissociation.

More recently, a review of dissociation and voice hearing found 31 studies published between 1986 and 2014 [28]. The narrative review of the studies pointed to a positive relationship between dissociation and voice hearing and meta-analysis of 19 studies suggested a 'robust' effect size. Secondary analyses of different types of dissociation suggested depersonalisation has a significant and large effect. However, the authors conceded that they did not aim to compare different types of dissociative experiences and suggest further investigations are needed in this area. Additionally, the review did not include studies of other psychotic phenomena such as delusions.

In this context, this review aimed to address the prevalence of depersonalisation symptoms and disorder in psychosis more generally. The primary aim was to establish the prevalence of a) depersonalisation symptoms and b) Depersonalisation Disorder (DPD) amongst those with diagnosis of a psychotic disorder. A secondary aim was to establish the association of depersonalisation and psychopathology (anxiety, depression, psychotic symptoms (i.e., hallucinations and delusions separately)) in individuals with a diagnosis of a psychotic disorder.

1.3. Methodology

1.3.1. Search strategy

PsycINFO, OVID Medline and Web of Science databases were searched on 27 January 2015 and updated 2 January 2016. Search terms for psychosis (Psychosis OR Schizop* OR hallucin* OR delus*) were combined with search terms for depersonalisation (Depersonalisation OR Depersonalization OR "Deperson* Disorder" OR Derealisation OR Derealization OR DPD OR Detachment) with an AND command.

The reference lists of review papers were reviewed and key researchers in this area were contacted to find any other sources of information or unpublished research. A citation search of key papers including [2] and [3] was conducted in January 2016.

1.3.2. Inclusion / exclusion criteria for studies

Any type of study design (excluding case studies) that provided quantitative, published data on depersonalisation symptoms amongst adults with a psychosis (ICD/DSM criteria) diagnosis were included.

Exclusion criteria for papers were as follows:

- Studies examining 'dissociation' generally but did not publish or provide data on depersonalisation
- Qualitative studies, case studies, and/or review papers
- Studies where the main measure of depersonalisation was not a validated, standardised measure (e.g., Dissociative Experiences Scale (DES, [29, 30]) or Cambridge Depersonalisation Scale (CDS))
- Studies where the majority of participants were under 18 years of age (e.g., adolescent and child samples).

If mixed diagnoses were present, authors were contacted to determine if they had raw data for just the psychosis sub-sample, if not, these studies were excluded.

As the number of studies was expected to be low, studies were not excluded on basis of a poor quality assessment, rather, it was decided to provide commentary on how issues of quality may affect the interpretation of results.

1.3.3. Selection process

Papers from all three database searches were combined in Endnote and an automated duplicates search was conducted and duplicates removed. The selection of papers was conducted over three main stages:

- titles of papers were scanned for clearly irrelevant studies
- abstracts were reviewed to exclude any further clearly irrelevant studies
- the full paper of remaining studies were independently reviewed by two reviewers (SF and MA). Discrepancies between the two reviewers were discussed and resolved through discussion.

1.3.4. Data extraction and analysis

Data was extracted using a standardised form to capture a) aspects of the design that may influence interpretation of the results b) data on depersonalisation symptoms and DPD, and c)

any additional published data on the relationship of depersonalisation to distress or psychopathology.

Depersonalisation Disorder (DPD) was considered present if indicated by one of two methods: the use of a diagnostic interview; and in studies that used the Cambridge Depersonalisation Scale (CDS, [3]) scores of greater than 70 were considered indicative of disorder. Other measures do not have an established clinical cut-off [2, 29-31] and so were not considered indicative of DPD but used for indications of depersonalisation symptom prevalence and intensity.

Authors of studies were contacted at this stage to provide any additional data (e.g., for numbers of participants who scored over a diagnostic threshold or data specific to those with a psychotic diagnosis).

1.3.5. Assessment of quality

Several standardised tools are available to assess the quality of studies included in systematic reviews of randomised controlled trials; however, few have been developed to assess observational studies, and fewer still have been specifically designed with incidence or prevalence questions in mind [32]. The STROBE guidelines [33] are the most widely used and recommended [34] for observational studies. However, they were designed to improve the reporting of observational studies, and as such they are not a specific measure of quality [32].

In a review of quality assessment tools [32] five tools were identified that had been designed with prevalence/incidence studies in mind. Based on their review of these studies, Shamliyan and colleagues did not recommend the use of any of the tools and subsequently designed and tested their own tool [35]. This tool specifically addresses issues of external and internal validity that are of particular relevance to questions of the current review. However, it was anticipated that many studies included in the current review may not be specifically designed to assess prevalence/incidence but other clinical questions of interest. In this context, the Shamliyan tool [35] was adapted to remove aspects that would unfairly judge non-epidemiological papers (e.g., general population based sampling), to simplify scoring and to include other aspects deemed relevant from other measures [36, 33] such as the appropriateness of the design to the research question or hypotheses and description of study sample size. The final tool is shown in Appendix A with the original source of each item noted. There are 14 items scored on a 0-2 scale with larger scores indicating greater quality (scores greater than 20 = high, 10-19

=acceptable/moderate, 0-9=unacceptable/poor) and less potential bias. Using the tool, all studies were independently rated by two reviewers (SF and MA). Intra-class correlation coefficient (ICC) was calculated on the total score to obtain a measure of the inter-rater reliability.

1.4. Results

The search process identified 1,211 potential studies, of which 16 were included in the review (see Figure 1). Agreement on the inclusion or exclusion of papers before discussion was 84%, all discrepancies were resolved after discussion.

1.4.1. Study characteristics

The 16 studies included 804 participants with psychosis (see Table 1 for a summary of their methodology). The study samples were predominately male (average of 59%) and with an average age of 33 years. Four studies recruited participants from community settings, two studies recruited from inpatient settings, four studies recruited from a mixture of inpatient and community settings and six did not specify or were unclear. The studies were situated in various countries: one from Turkey, one from South Africa, two from UK, two from Italy, three from Germany and seven from Spain.

All studies except one were cross-sectional. Most studies were explorative in nature and were designed to establish the intensity of dissociation/depersonalisation, examine and test the psychometric properties of measures of depersonalisation/dissociation, or to examine depersonalisation as a correlate or mediator of other variables. Only one study had amongst its stated aims to assess prevalence of depersonalisation symptoms or disorder in psychosis.

In terms of the measurement of depersonalisation, four different measures were found amongst the studies. Eight studies used the Cambridge Depersonalisation Scale (CDS [3]). The CDS [3] is a 29 item scale that measures the severity of trait depersonalisation symptoms over the preceding six months. For each item, frequency (likert scale 0=never to 4=all the time) and duration (likert scale 1=few seconds to 6=more than a week) are collected; each item maximum is therefore 10. A total scale score is the sum of each item, with a maximum of 290. Scores greater than 70 have been shown to reliably predict clinical diagnosis of DPD using DSM criteria.

Eleven studies used the Dissociative Experiences Scale (DES or DES-II, [29, 30]). The DES [30, 29] is a 28 item scale that measures the severity of trait dissociation symptoms across the lifespan. Items are rated on a scale of 0% to 100% and capture the extent of time that the individual experiences the dissociative symptom. A total score is determined by calculating the average across the items (i.e., add all item scores and divide by 28). Analyses show good internal and test-retest reliability [29]. Three subscales absorption, amnesia and depersonalisation can be generated. The Depersonalisation subscale is comprised of six items.

Two studies used a state based measure (State Scale of Dissociation (SSD), [37]). The SSD has 56 items scored on a nine-point likert scale (from 'not at all' to 'very much so') capturing the extent to which respondents are experiencing the symptom at the time of completion of the measure. Total score and subscale scores are calculated by the mean of items. The Depersonalisation Subscale is comprised of eight items. Other subscales include identity alteration and amnesia.

One study used the Dissociative Disorders Interview Schedule (DDIS [38]) which is a structured interview covering 131 items designed to establish the presence of dissociative disorders according to DSM criteria. In addition two studies used DSM-IV criteria to establish the presence of DPD.

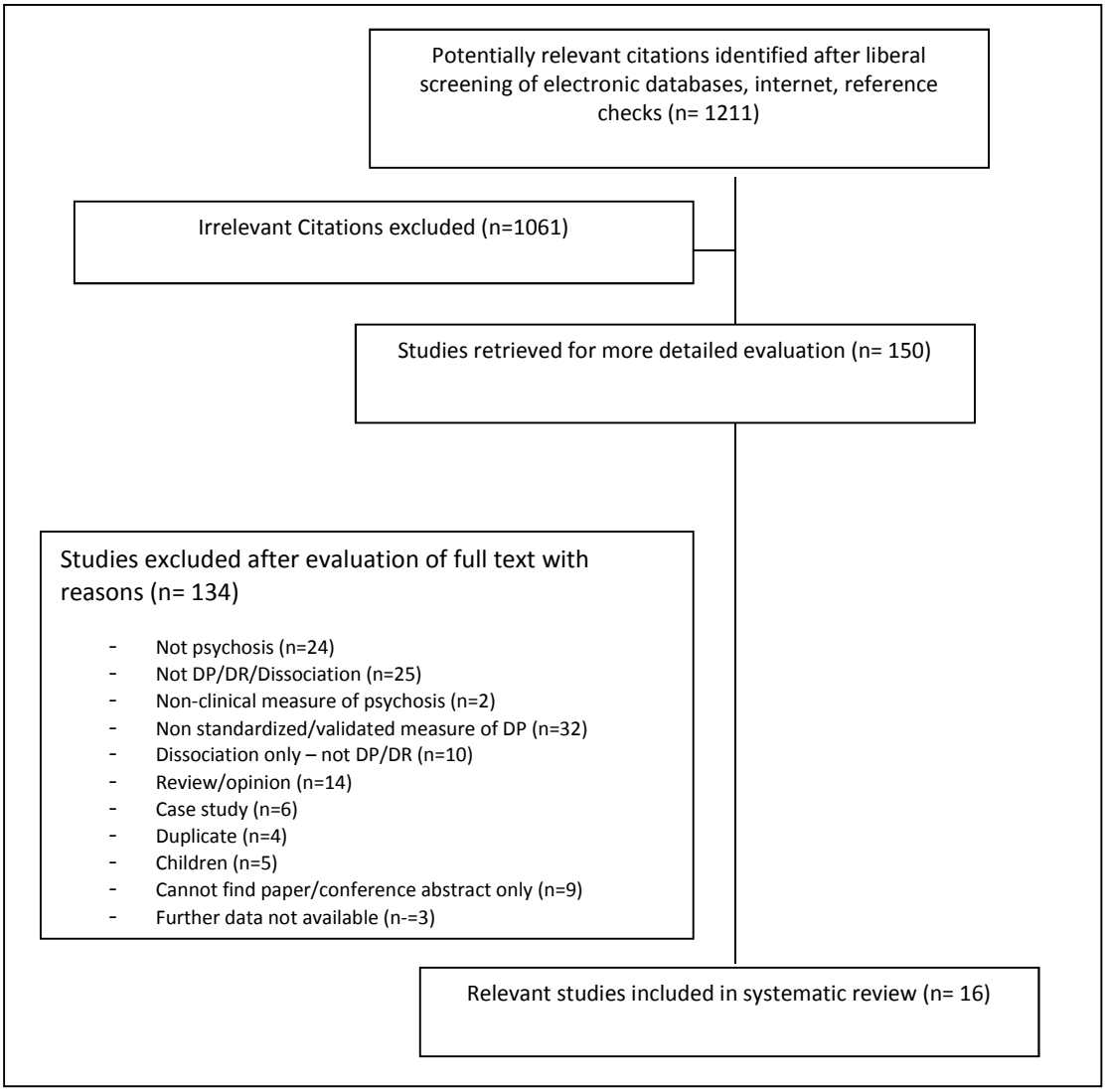

Figure 1: Summary of search process

Table 1 – Summary of included studies

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Brunner et al 2004 [39] Germany	Not specified: University setting. Recruitment strategy not specified	Cross-sectional	Intensity: to investigate the occurrence of dissociative symptoms in patients with a schizophrenic disorder	26 patients with schizophrenia spectrum disorder and 26 with BPD and 1056 healthy controls.	DES	ICD-10; psychiatrist & 2 clinical supervisors	DES mean: 1.40 (SD=1.06) DES DP mean = 0.99 (SD=1.21).	not reported	not reported	not collected	15
Cernis et al, 2014 [40], UK	Clinical setting not specified. Recruited from two national health service (NHS) mental health trusts.	cross-sectional	Prevalence: To assess the presence of depersonalisation in patients with persecutory delusions and examine associations with levels of paranoia and worry	55 patients with persecutory delusions	CDS - frequency only	yes - but uncertain derivation	CDS Frequency mean=36.8; median 36.5; SD=22; IQR= 19.8 - 50.5. Mean score as percent of maximum = 31.7	47 (94%)	Uncertain as not full scale 60% experienced 10 symptoms regularly.	BAI (r=0.51, p<0.01), PANSS Hallucinations (r=0.26, 0.07); PANSS positive (r=0.19, p=0.20); PANSS total r=0.57; p<0.01)	15
Fagioli et al 2015 [41] Italy	Mixed: inpatients and outpatients of psychiatric services in two Italian regions. Recruitment: referrals to mental health services and psychiatric wards in Rome and Naples between June 2010 to January 2013	cross sectional	Measures - factor analysis of Italian CDS	47 schizophrenia; 67 depression; 35 anxiety	CDS	DSM-IV TR	CDS: mean 72.10 (SD= 43.89)	* 100%	* 23/47 = 48.9%	BAI mean (17.34 (SD: 11.74); PANSS-Positive mean19.25 (SD 8.07); PANSS-Negative mean=25.91 (SD: 8.59); PANSS-General mean 43.59 (SD: 13.37); PANSS total mean 88.63 (SD: 22.83); BDI mean 22.38 (SD 12.71)	15

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Gonzalez-Torres et al, 2010 [20]. Spain	Inpatients Setting. Recruitment from consecutive admissions to psychiatric unit, then approach first degree relatives. Controls recruited from hospital flyers	cross-sectional	Intensity & Prevalence: to examine depersonalisation in schizophrenia spectrum, first degree relatives and normal controls	147 Schizophrenia Spectrum disorders; 73 Relatives; 172 Controls	CDS	SCID-1 diagnostic interview - DSM-IV criteria	CDS: Mean frequency score 13 (IQR = 8-20.3); Mean Duration score = 21 (IQR = 12-36); Mean total 33 (IQR= 20-60); Number of items with positive response = 10 (IQR = 6-15)	not reported	21/174 = 17%	median and IQR PANSS scores - positive 13 (10-16); PANSS negative (14 (10-18); PANSS general 27 (22-31); PANSS total score 53 (44-63). No comparison.	18
Krueger et al, 2013 [42]. South Africa	Setting: psychiatric and academic hospital. Recruitment convenience sampling 50 adult psychiatric patient with a history of high tendency to dissociate	cross sectional	Other: to explore concurrent associations between quantified dissociative states and quantitative electroencephalography parameters in psychiatric patients	12 (24%) psychotic disorder; 18 (36%) dissociative/conversion disorders; 20 (40%) mood and other disorders	DES, SSD	unclear	* DES mean = 13.38 (SD=6.69); DES-DP mean= 8.33 (SD=7.14) Correlate between SSD depersonalisation and DES total score r=0.730, p<0.01 SSD mean = 0.68 (SD=1.22); SSD - DP mean = 0.65 (SD=1.10)	* DES-DP subscale = 11/12 (91.7%); using SSD-DP = 7/12 (58.3%)	not reported	not reported	14
Krueger et al, 2002 [37]. UK.	Setting mixed: Inpatient and community setting. Recruitment consecutive admissions to general adult inpatient wards during a 5 month period and community based facilities. Control group undergraduate students	cross sectional	Measures - Psychometric testing of SSD	N=130 (67 patients and 63 controls); 10 dissociative disorder; 18 Schizophrenia; 19 Major Depressive Episode; 20 alcohol withdrawal.	DES, SSD	DSM-IV	* DES mean =20.79 (SD=20.02); DES-DP mean= 21.11 (SD= 25.47). SSD mean =2.10 (SD = 1.83); SSD-DP mean =2.44 (SD= 2.57).	*DES-DP subscale = 12/18 (66.6%); using SSD-DP = 14/18 (77.8%)	not reported	not reported	14

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Luque-Luque et al, 2016 [43]. Spain	Inpatients Setting. Recruitment not specified.	cross-sectional	Intensity: Determine intensity of depersonalisation in two samples with psychotic disorders	20 First episode schizophrenia and 28 with multiple episodes of schizophrenia	CDS, DES	DSM-IV TR	Total sample: CDS mean: = 40.58 (SD = 32.7); DES total = 22.01 (16.48) DES DP= 14.64 (SD = 13.12) First episode: CDS mean: = 61.3 (SD=30.89); DES = 2.81 (14.24) DES DP= 21.0 (SD = 12.6) Multiple episode: CDS mean: = 25.53 (SD=24.83); DES = 21.44 (18.41) DES DP= 10.1 (SD = 11.69)	* First episode = 18/20 (90%) Multiple episode = 24/28 (85.7%)	* First episode = 8/20 (40%) Multiple episode = 1/28 (3.5%)	Total sample: PANSS positive = 23.27 (SD=7.13); PANSS negative =16.35 (SD=9.25). First episode: PANSS positive = 22.25 (SD=6.08); PANSS negative = 10.9 (SD=4.71). Multiple episode: PANSS positive = 24.0 (SD=7.82); PANSS negative = 20.25 (SD=9.78).	16
Migliorini et al 2012 [44]. Italy.	Setting mixed: inpatients and outpatients of psychiatric services in two Italian regions. Recruitment 92 in and outpatients referred to psychiatric services from within catchment area of 500 000 in Rome between June 2010 and July 2011	cross sectional	Measures - adapt and validate the Italian version of the CDS	31 schizophrenia; 42 Depressive disorder; 19 anxiety disorder	Criterion A and B DSM-IV TR; CDS and DES	DSM-IV TR	CDS mean = 80.45 (SD = 42.35) DES mean= 23.11 (SD = 16.30); DES - DP mean score = 27.19 (SD = 18.95); DES Taxon = 21.88 (SD = 17.54)	67.70%	None based on DSM-IV criteria. * 17 (54%; using 70/71 threshold) or 21 (67.7%; using 59 threshold)	mean, SD, spearman correlation with CDS total: PANSS Positive 18.22 (SD 6.51) r=0.21 (NS), PANSS Negative r=0.28 (NS), PANSS total score 88.96 (SD 19.87) r 0.34, p<0.001, BDI 24.29 (SD 13.14), r=0.51, p<0.001; BAI 19.54 (13.23), r=0.37, p<0.001	17
Molina Castillo et al, 2006 [45]. Spain	Setting not specified: Patients from local area - (does not say more specifically). Recruitment not specified.	cross sectional	Measures - adapt and validate the Spanish version of the CDS	130 total; 77 schizophrenia, 35 depression, 18 anxiety disorder	CDS, DES, DSM-IV	DSM-IV criteria	CDS mean = 43.16 (SD = 37), median = 35; DES mean = 21.73 (SD = 20), median = 16.6; DES-DP = 18.37 (SD = 24), median = 7.8	14%	Not reported according to CDS threshold. None based on DSM-IV criteria.	BDI mean: 12.32 (SD 9), median 10; Hamilton anxiety scale mean 10.66 (SD 6), median 10	18

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Perona-Garcelan et al, 2011 [46]. Spain	Community setting - rehabilitation day centres. Recruitment not reported.	cross-sectional	Other: To study the relationship between self-focused attention and depersonalisation in patients with positive psychotic symptoms	59 participants, 57 with Paranoid Schizophrenia, 1 undifferentiated schizophrenia and 1 delusional disorder	CDS	DSM-IV TR	CDS mean = 53.92 (SD = 38.95)	not reported	not reported	PANSS - hallucinations r=.496, p<.001, PANSS-delusions r=.302, p=0.02	13
Perona-Garcelan et al, 2012a [47]. Spain	Community setting - rehabilitation day centres & private psychologists in Spain. Recruitment not reported.	cross sectional	Other: to study the relationship of metacognition, absorption and depersonalisation in hallucinating patients	124 participants: 27 Schizophrenia with hallucinations and delusions; 20 schizophrenia with delusions but no hallucinations; 28 diagnosed with schizophrenia but no active symptoms for one year; 22 patients with other clinical disorders (anxiety and mood); 27 non-clinical controls..	CDS	DSM-IV	CDS mean: Schizophrenia with hallucinations and delusions = 72.15 (95%CI 56.62-87.67); Schizophrenia with delusions but no hallucinations: = 28.9 (95%CI 17.5-40.30); patients diagnosed with schizophrenia but no active symptoms for one year = 18.36 (95%CI 11.55-25.16)	* Schizophrenia with hallucinations and delusions: 100%; schizophrenia with delusions but no hallucinations: 100%; patients diagnosed with schizophrenia but no active symptoms for one year: 89%. Overall sample 96%	* Schizophrenia with hallucinations and delusions: n=14/27 (51.8%); schizophrenia with delusions but no hallucinations: n=2/20 (10%); patients diagnosed with schizophrenia but no active symptoms for one year: 1/28 (3.5%) Overall sample=17/75 (22.6%)	Depersonalisation only significant predictor of PANSS hallucinations (Beta - 0.674, p=0.000)	16

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Perona-Garcelan et al, 2008 [17]. Spain.	Community setting - rehabilitation day centres. Recruitment not reported	cross sectional	Intensity: To study dissociative experiences and self-focussed attention by comparing patients with psychoses who suffer from auditory hallucinations, those who have recovered from auditory hallucinations, patients with psychosis but not auditory hallucinations and normal subjects	68 participants: 17 with active hallucinations; 16 had hallucinations in the past; 18 diagnosed with schizophrenia spectrum with no history of hallucinations; 17 control group participants	DES-II	DSM-IV	DES mean: active hallucinations = 27.50; past hallucinations = 14.65 no history of hallucinations = 9.19 DES-DP mean: active hallucinations = 36.24; past hallucinations = 6.45; no history of hallucinations = 1.75.	* 100% active hallucinations; 43% past history of hallucinations; 33% of no history of hallucinations	not reported	Depersonalisation only significant predictor of PANSS hallucinations (R 0.795, R2 0.632., p=0.0000)	15
Perona-Garcelan et al, 2012b [16]. Spain.	Community setting - rehabilitation day centres. Recruitment not reported.	cross-sectional	Other: to study the relationship between reported traumatic experiences in childhood and positive psychotic symptoms (with dissociative symptoms as a mediator).	n=71, 66 Paranoid Schizophrenia, 3 Schizoaffective disorder, 1 delusional disorder	DES-II	DSM-IV TR	DES mean = 18.70 (SD = 13.34) DES-DP mean = 18.09 (SD = 20.38)	* 69%	not reported	PANSS - hallucinations r=.71, P<0.01; PANSS - Delusions r=.31, p<0.01	16
Schafer et al, 2012 [48]. Germany	Inpatient setting: Specialised ward for psychotic disorders. Recruitment 283 consecutive admissions with schizophrenic spectrum ICD-10 diagnosis. 178 (63%) agreed to participate, after withdrawals the final sample was 145 (51%).	observational study at two time points: admission and mean 20.9 days after at 'stabilisation'	Intensity: Examine relationship of dissociation, childhood trauma and psychotic symptoms at admission to hospital and then stabilisation	104 (72%) schizophrenia; 32 (22%) schizoaffective disorder, 9 (6%) other Schizophrenia spectrum	DES - German	ICD-10	DES mean T0= 19.2 (SD=15), T1 = 14.1 (SD=12.0); DES-DP mean at T0=18.1 (SD=18.3); T1 = 13.3 (SD=14.6); DES-Taxon T0 =15.1 (SD=15.0), T1= 11.1 (SD=12.4)	not reported	not reported	PANSS positive subscale significant predictor of DES at admission (F=3.66, p=0.17). At T1 sexual abuse was the best predictor of DES	17

First author, Year and Country	Clinical setting & recruitment	Design	Aims/Research question	Sample diagnosis	Measure of DP	Diagnosis of Psychosis	DP Scores	Proportion with at least one DP symptom	Proportion meeting threshold for DPD	Psychopathology associated with DP	Quality Rating
Spitzer et al, 1997 [49]. Germany	Setting and recruitment not reported	cross sectional	Other: Is there any relationship between the extent of dissociation and the predominant syndrome type of schizophrenia?	27 Patients with ICD-10 schizophrenia; 27 controls	DES	ICD-10; uncertain derivation	DES mean = 15.81 (SD=10.55); DES-DP = 14.71 (SD=14.41)	not reported	not reported	Significant correlations between DP subscale and PANSS items: hallucinatory behaviour r=0.648, p<0.001; passive social withdrawal r=-0.415, p< 0.01;	11
Yargic et al, 1998 [50]. Turkey.	Mixed: Psychiatry inpatient and outpatient clinic of hospital, or neurology program Istanbul Recruitment Consecutive admissions during a 3 month study period to a DID program	Cross sectional	Intensity & correlates: to determine the clinical differences between dissociative identity disorder and comparison groups including schizophrenia	20 with DID, 20 with panic disorder, 20 with schizophrenia and 20 with complex partial seizures	Dissociative Disorders Interview Schedule and DES	DSM-IV	DES mean = 15.6 (SD =2.7)	not reported	1 (5%)	not collected	16

Notes
- where mixed samples with other clinical disorders, data presented is just for the schizophrenia spectrum group unless otherwise noted.
* unpublished data received from author

Abbreviations:
BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; CDS: Cambridge Depersonalisation Scale; CI: confidence interval; DES: Dissociative Experiences Scale; DP: depersonalisation; DSM-IV: Diagnostic and Statistical Manual 4th edition; DID: Dissociative Identity Disorder; ICD-10: International Classification of Disease; IQR: inter-quartile range; PANSS: Positive and Negative Symptom Scale for Schizophrenia; r: correlational coefficient; R: R2 Coefficient of Determination; SD: standard deviation; SSD State Scale of Dissociation;T0: Baseline; T1: time-point 1.

1.4.2. Quality of studies

All studies were deemed to have used appropriate designs for their research questions. However, as the aims of this review were to address prevalence of depersonalisation in psychosis, studies were assessed according to criteria that provide estimates of the external and internal validity of data. With this caveat in mind, no studies were considered 'high quality' (greater than 20 – see Table 1 for total scores), but all studies were in the moderate or acceptable range, with some risk of poor generalisability and measurement error. The ICC of 0.907 indicated a high level of agreement between quality raters.

Several studies [39, 43, 16, 46, 17, 47, 49] did not report the method of sampling used and all others [20, 40-42, 37, 44, 45, 48, 50] used convenience sampling. Two studies [43, 49] did not report their sampling frame, one study [41] attempted to recruit from the population of individuals with psychosis in the area and the remaining studies [20, 39, 40, 42, 37, 44, 45, 16, 46, 17, 47, 48, 50] used local clinics lists or registers. Likewise, few studies [43, 16, 17, 48] specifically recruited for or analysed different aspects of psychosis (either stage of illness or type or severity of psychotic symptoms). In this context, many of the studies have the possibility of selection biases. Several studies [20, 39, 40, 42, 45, 16, 46, 17, 47, 48, 43] discussed the potential impact of such sampling and selection biases in their interpretation of the results but only one [20] adjusted for such issues in the analysis. Further, only two studies [48, 50] reported how they arrived at their final sample, both in terms of sample size determination and recruitment data such as the number of people who did not consent to be part of the research. In summary, all studies were deemed at risk of some bias.

Ratings that addressed the internal validity of studies were fairly consistent across the studies. Nine of the sixteen studies [20, 39, 41, 44, 45, 16, 17, 47, 48, 43] confirmed the diagnosis of psychosis via interview with a clinician. Similarly, all studies used a standardized and validated measure of depersonalisation and all except one [40] reported the depersonalisation data in a standardised manner. However, only three studies [44, 45, 50] confirmed participants' self-report of depersonalisation at a clinical interview, thus introducing the possibility of measurement error; particularly as items addressing depersonalisation experiences have been reported as particularly difficult for individuals with a psychosis diagnosis to interpret [48].

In summary, the studies were deemed to be of moderate quality in addressing the question of prevalence of depersonalisation in psychosis. The main issues were the potential lack of generalisability of the samples and a lack of oversight in the assessment of depersonalisation.

1.4.3. Rates of depersonalisation symptoms in psychosis

Ten studies provided data on the proportion of the sample who reported at least one symptom of depersonalisation. The lowest percentage was found in a cross-sectional study of community outpatients with and without active hallucinations [17]. In this study, 33% of the participants who had an active diagnosis of a schizophrenia spectrum disorder but who had never experienced hallucinations reported at least one symptom of depersonalisation on the DES-DP subscale. By contrast, 43% of participants with a past history of hallucinations and 100% of those with current hallucinations reported at least one depersonalisation symptom. Interestingly, a study by the same research group [47] using the CDS found that at least 89% of the sample reported at least one symptom of depersonalisation even amongst participants who had not experienced active symptoms of psychosis for at least one year.

Four other studies [42, 41, 40, 43] reported that over 90% of their sample positively endorsed at least one symptom of depersonalisation. None of these four studies distinguished rates of depersonalisation between active and remitted psychotic symptoms. Three of these studies used the CDS [41, 40, 43] and one the DES [42]. In two further studies that used the DES [16, 37] and one that used the CDS [44], between 60 and 70% of the sample reported at least one depersonalisation symptom.

Two studies [40, 20] reported the average number of positively endorsed items on the CDS. In their study of inpatients and first-degree relatives, Gonzales-Torres and colleagues [20] reported that inpatients endorsed, on average, 10 items or symptoms of depersonalisation. Similarly Cernis and colleagues [40] reported that 60% of their sample reported experiencing at least 10 symptoms of depersonalisation regularly.

Interestingly, two studies reported data on both a state based measure of depersonalisation (SSD-DP), and a trait based measure (CDS) and found some variation, suggesting that the experience of depersonalisation may not be constant. For example, Krueger and colleagues [42] found that 91.7% of participants from an academic hospital rated at least one symptom on the CDS compared to 58.3% on the state based measure - the SSD-DP. Similarly, in an earlier study the same research group [37] found that amongst their mixed sample of inpatients and outpatients, 66% reported at least one symptom on the DES-DP compared to 78% on the state based measure – the SSD-DP.

In summary, the majority of studies found that over 60% of individuals with a diagnosis of a psychotic condition will report at least one symptom of depersonalisation. Additionally, in those who do experience depersonalisation, the majority experience multiple symptoms. There is some suggestion from studies comparing state and trait measures of depersonalisation that experience of depersonalisation symptoms varies and is not constant within individuals.

1.4.4. Intensity of depersonalisation symptoms in psychosis

All 16 studies provided an indication of the intensity of depersonalisation. Tables 2.1 and 2.2 provide summary data from studies that used the CDS and DES respectively. In studies that reported CDS data, mean scores ranged from 18.36 amongst participants with remitted psychotic symptoms to 80.45 amongst a mixed sample of inpatients and outpatients. Three studies [47, 44, 41] reported average scores amongst the sample that were above the clinical cut-off threshold for DPD (i.e., greater than 70).

Table 2.1 Studies of intensity of depersonalisation using the CDS

First author	Frequency	Duration	Total
Cernis	36.8	-	-
Fagioli			72.10
Gonzales	13	21	33
Luque-Luque -Total sample			40.6
- First Episode			61.3
- Multiple Episodes			25.5
Migliorini			80.5
Molina			43.2
Perona-Garcelan 2011			53.9
Perona-Garcelan 2012a – SCZ: AH & DELs			72.1
- SCZ: DELs, no AH			28.9
- SCZ in remission			18.4

Notes:
SCZ: schizophrenia; AH: auditory hallucinations; DELs: delusions

Studies that used the DES reported total scores of between 1.1 and 23, which would be considered 'low' dissociation (scores higher than 30 are considered 'high dissociation' [29]). The scores on the DP subscale ranged from 0.99 amongst 'remitted patients' to 27.19. Only one study measured depersonalisation at two time points. Schafer and colleagues [48] measured depersonalisation using the DES at admission to an inpatient facility and then when considered 'stabilised'. They found that scores on the DES-DP subscale and DES-total score dropped once psychotic symptoms had stabilised.

Table 2.2 Studies of intensity of depersonalisation using the DES

First author	DES-DP	DES Total
Brunner	0.99	1.14
Krueger 2013	8.33	13.38
Krueger 2002	21.11	20.70
Luque-Luque - Total sample	14.64	22.01
- First Episode	21.0	2.81
- Multiple Episodes	10.1	21.44
Migliorini	27.19	23.11
Molina Costillo	18.37	21.73
Perona-Garcelan 2008 - SCZ active hallucinations	36.24	
- SCZ past hallucinations	6.45	
- SCZ no hallucinations	1.75	
Perona-Garcelan 2012b	18.09	
Schafer**	T0: 18.91, T1: 13.3	T0: 18.2 T1: 14.1
Spritzer	14.71	15.81
Yargic		15.6

Notes:
** T0: Time 0 - baseline/admission to inpatient facility; T1: Time 1 - symptom stabilisation

In summary, intensity of depersonalisation symptoms in psychosis may to vary according to the nature of psychotic symptoms. Furthermore, studies using the DES report dissociation in the low range. There is no established characterisation of DES-DP or CDS scores, however, several studies reported CDS mean scores above the clinical cut-off. These findings suggest different sensitivity amongst these two most frequently used measures of depersonalisation.

1.4.5. Rates of DPD in psychosis

Of the 16 included studies, 7 (44%) provided an estimate of the number of participants who met criteria for DPD. For the studies that did not provide an estimate, eight studies used either the DES or other measures with no established cut-off for likely DPD and one study [40] did not use the full CDS and therefore could not provide an estimate of those exceeding the total score of 70. Two studies [45, 46] used the CDS but did not report those exceeding the threshold and did not have this data available.

Two studies [44, 45] used DSM-IV interview schedules and found that no participant also met the criteria for DPD, however this is because the DSM states that DPD cannot be diagnosed in the context of another disorder such as a psychotic disorder. One other study [50] using the Dissociative Disorder Interview Schedule (DDIS) found 1/20 participant (5%) met criteria for DPD.

For the eight studies that used the CDS, five provided estimates of those meeting clinical cutoff for DPD (i.e., scoring higher than 70 on the CDS). Rates of DPD in these studies varied from 3.5% to 54%. The five studies were based in Spain and Italy and used a mixture of inpatient and outpatient participants. The two Italian studies [44, 41] were designed to test aspects of the psychometric properties of the CDS. Both studies used similar methodology and a mixture of inpatient and outpatients, and reported rates of 49% [41] and 54% [44]. The three Spanish studies had quite different methodologies and aims. One study [43] examined the differences in depersonalisation in a sample of inpatients once stabilised, and distinguished between those that were presenting with a first episode of psychosis compared to those with multiple episodes. The rates of DPD were higher amongst the first episode sample (40%) compared to those with multiple episodes (3.5%). Another Spanish study [20] examined rates of depersonalisation in an inpatient sample once stabilised. They found that 17% of participants scored over 70 on the CDS. The third Spanish study [47] examined depersonalisation in a sample of outpatients diagnosed with a psychotic disorder with various symptom profiles. Overall, 23% scored over the 70 threshold on the CDS, however there were marked differences in the percentage who scored above the cut-off according to their symptom profile. The number scoring above cut-off were as follows: 3.5% of patients with a psychosis diagnosis who were considered to be in remission; 10% of those with current experience of delusions but no hallucinations; and 52% of those with current hallucinations and delusions.

In summary, between 3.5% and 54% of those with a diagnosis of a psychotic disorder may meet threshold for DPD. The prevalence of DPD appears to be related to both the stage of illness (i.e., first episode compared to more established disorder) and presence of active symptoms versus remitted psychotic symptoms. Additionally, there may be a differential prevalence according to type of psychotic symptoms with higher rates of DPD amongst those experiencing hallucinations compared to delusions. However, as so few studies have examined these questions, the findings need replication.

1.4.6. Association with psychopathology

Twelve studies provided data on the association between depersonalisation and other psychopathology.

Association with depression and anxiety

The association between depersonalisation and anxiety in psychosis was reported by four studies with community samples [45, 44, 41, 40]. Three studies used the Beck Anxiety Inventory (BAI) [51] and one used the Hamilton Anxiety Scale (from the Hamilton Anxiety and Depression Scales; HADS) [52]. There was a moderate correlation (ranging from r=0.37 [44] to r=0.51 [40]) between measures of anxiety and depersonalisation amongst those with a diagnosed psychotic disorder. Levels of anxiety were in the mild (HADS = 10.66[45]) to moderate range (BAI = 19.54 [44]).

The association between depersonalisation and depression was reported by three studies [45, 44, 41], all of which used the Beck Depression Inventory (BDI) [53, 54]. All three studies were explorations of the psychometric properties of the CDS amongst psychiatric outpatients and inpatients. Two studies based in Italy reported moderate levels of depression amongst patients diagnosed with psychotic conditions who were also experiencing depersonalisation (BDI mean 22.38 (SD 12.71) [41] and BDI mean 24.29 (SD 13.14) [44]). One other study [45] based in Spain reported minimal levels of depression in their sample (BDI mean: 12.32 (SD 9). One study [44] reported a moderate/strong correlation between depersonalisation and scores on the BDI (r=0.51, p=0.01)).

Association with psychosis severity

Eleven studies reported on the association between depersonalisation and psychosis severity. Two studies [47, 17] examined the extent to which depersonalisation would predict severity of hallucinations in multiple regression analyses. They found that depersonalisation was, in fact, the only significant predictor of the hallucination score on the Positive and Negative Symptoms Scale (PANSS [55]) (other discarded predictors were total DES score, other subscales of DES, measures of self-consciousness, metacognition, and absorption).

Four studies reported correlations ranging from r=0.26 (not significant) to r=0.71 (p<0.01) between different measures of hallucinations severity and depersonalisation. For example, in their study of depersonalisation in individuals with delusions, Cernis and colleagues [40] reported a non-significant correlation of r=0.26, between the CDS frequency score and PANSS

hallucinations. Three other studies reported moderate to strong correlations between depersonalisation and hallucinations as measured by the PANSS. Spitzer and colleagues [49] studied 27 German patients with positive and negative symptoms. They reported a correlation of 0.65 between the PANSS hallucination item and the DES-DP subscale. Perona-Garcelan and colleagues [46] studied the relationship between self-focused attention, depersonalisation and positive symptoms amongst 59 outpatients in Spain. They reported a correlation of 0.50 between PANSS-hallucinations and the CDS total score. A study the following year by the same research group [16] examined the relationship between reported traumatic experiences in childhood and positive psychotic symptoms (with dissociative symptoms as a mediator) in community rehabilitation centre patients. They reported a strong correlation (r=0.71) between PANSS-hallucinations and the DES-DP subscale. By contrast, findings regarding the association between PANSS delusion item and depersonalisation were inconsistent. The Spitzer and colleagues' study described above [49] found no statistically significant relationship between the two variables, while the two studies from the Spanish group [46, 16] found weak/moderate correlations.

Moderate correlations (r=0.34 to r=0.57) were found between the total score on the PANSS and depersonalisation by two studies [44, 40]. The same two studies reported non-significant correlations between the PANSS-positive symptom subscale and depersonalisation. One study reported a non-significant correlation with a negative symptom of the PANSS and depersonalisation [44].

The severity of psychosis as measured by the PANSS [55] was reported by three studies [44, 41, 20] to be in the mild to moderately ill range [56]. However, none of these studies compared the level of psychotic symptoms according to presence or absence of DPD or DP symptoms.

1.5. Discussion

This systematic review aimed to establish the prevalence rates, intensity and correlates of depersonalisation in the context of a psychotic disorder. Sixteen studies involving 804 participants provided data.

The first aim was to determine the prevalence of depersonalisation symptoms in those with a diagnosis of a psychotic disorder. Between 33 and 100% of individuals with psychosis report at least one experience of depersonalisation. It appears that higher percentages may be found in

those with active psychotic symptoms. Further, there is some indication that the majority of those reporting depersonalisation symptoms will report 10 or more symptoms, though only two studies to date have reported such data and so this finding requires replication. Intensity scores on measures of depersonalisation in the included studies were consistent with previous findings in the literature (see [29]). As with prevalence of depersonalisation symptoms, stage of illness and presence of active psychotic symptoms may have an effect on intensity as those in earlier stages of illness [43] and those with more active phase symptoms of psychosis [47] report a greater intensity of depersonalisation.

Several studies provided data on the influence of temporal factors and other psychopathology on the prevalence and intensity of depersonalisation symptoms. For example, Schafer and colleagues [48] suggested that the relative prevalence of depersonalisation symptoms was affected by mental state, with a decrease in self-reported symptoms once psychotic symptoms were stabilised. Similarly, Perona-Garcelan and colleagues [16] found that prevalence of depersonalisation symptoms differed amongst those with active symptoms and those in remission. It is possible that, as some authors have suggested [48], that those with active symptoms of psychosis may have difficulty interpreting the content of depersonalisation questions due to attentional, memory and other cognitive deficits. Additionally, there is some concern about conceptual overlap between measures of depersonalisation and psychotic symptoms, for example, the DES includes an item about hearing voices. Considering the lack of clinical review of the self-reported depersonalisation symptoms, it is not possible from this review to determine if the high rates of depersonalisation symptoms are a result of measurement error, and perhaps better conceived of as an artifact of the psychotic disorder. However, it is also possible the link between mental state and high rates of depersonalisation symptoms is evidence of the aetiological relationship between the two symptoms – i.e., that presence of depersonalisation creates more distress leading to increased positive symptoms, and vice versa. This proposition requires further empirical investigation, through a phenomenological, longitudinal investigation of the content of the symptoms. Interestingly, and notwithstanding the significant concern regarding measurement, there is emerging evidence that depersonalisation symptoms may exist independently to the psychosis. For example, in the Perona-Garcelan study mentioned above [16] a group of 'remitted' patients continued to report at least one symptom of depersonalisation despite having no active psychotic symptoms for at least one year [47]. This is consistent with the proposition that depersonalisation tends to persist [30, 48, 4] beyond the active phase of other disorders.

The second aim was to determine the rates of DPD. When using strict diagnostic protocols, three studies found that no participants with a psychotic disorder also met criteria for DPD, but this was an artefact of the diagnostic rules precluding the diagnosis of DPD in the context of another psychiatric diagnosis. When using the symptom based measure of the CDS the rates of DPD ranged from 3.5% to 54%. This high level of DPD in psychosis is a similar finding to previous reviews [28, 2] and suggests that rates of DPD are much higher in individuals with psychotic experiences than in the general population.

Finally, we aimed to explore the association between depersonalisation, anxiety, depression and psychotic symptoms. There was a moderate correlation between depersonalisation and both anxiety and depression. Furthermore, there was a moderate correlation between depersonalisation and hallucinations and/or overall psychotic symptoms. In this context, it is safe to presume that if depersonalisation is present in the context of psychosis, there will be more distress and more severe symptomatology.

1.5.1. Implications of findings

Research implications

The question regarding the relationship between depersonalisation and psychosis remains and further research is required. Longitudinal research is required to chart the course of depersonalisation and psychosis in a representative sample. For example, do depersonalisation symptoms attenuate when psychotic symptoms remit and/or do they persist as some authors have suggested [48, 30]? Stage of psychosis may also be important; for example, the finding of higher rates of DPD in the earlier stages of psychosis, compared to those with multiple episodes, requires replication. It would be an interesting area for further research, and help to answer the question of measurement error, to compare the phenomenology of psychotic and depersonalisation symptoms within individuals at such different stages of illness. A phenomenological study of both psychotic and depersonalisation experiences would also be interesting to disentangle the relationship between the two phenomena. For example, if someone is experiencing depersonalisation and psychosis, would their psychotic symptoms always be directly linked with the depersonalisation, for example through a delusional interpretation, or may they exist as two separate, comorbid symptoms?

In terms of treatment protocols, typically, clinicians would target psychotic symptomatology and/or distress, however, it would be an interesting avenue for further research to determine if direct targeting of the depersonalisation led to improvements in psychotic symptoms. Freeman

[27] recently called for a different approach to devising treatments in psychosis and has had some success in targeting potential etiological factors such as worry and sleep difficulties; depersonalisation as an 'anomalous experience' [11, 19] may be one such factor. There is currently limited evidence for the efficacy of treatments for depersonalisation however, cognitive behavioural approaches are promising [57]. Our research group is currently undertaking a feasibility study for brief cognitive behavioural therapy for depersonalisation in psychosis (see Chapter 2 in this volume). Should this prove feasible, a further avenue may be to compare the efficacy of treatments targeting depersonalisation and those targeting hallucinations/psychosis in patients who have both experiences.

All studies in the review are potentially subject to measurement error as none reported they used a clinical interview to clarify participant responses to questionnaires assessing depersonalisation. In future research, assessment of depersonalisation in psychosis should use standardized, self-report questionnaires only in conjunction with a clinical interview with a clinician familiar with both psychosis and depersonalisation, to ensure participants' understanding of the items is adequate.

Clinical implications

Considering the research suggests that between 3.5 and 54% of those with active symptoms of psychosis may also meet criteria for DPD, clinicians should consider routine screening for depersonalisation in their clinics. Formulations that ignore potentially distressing depersonalisation experiences may miss an opportunity for intervention. Furthermore, the finding that depersonalisation is positively correlated with psychotic symptoms and measures of distress (anxiety and depression), suggests that there may be some benefit in directly targeting depersonalisation, though this requires further research to determine effective treatments.

1.5.2. Limitations

Limitations of the review

This review only looked at depersonalisation and not other forms of dissociation. Some studies were excluded that looked at dissociation as a broad concept and did not specifically report on depersonalisation (and/or authors did not respond to requests for data if potentially available – e.g., through use of the DES scale). This was an a priori decision however it is possible that other manifestations of dissociation in psychosis may be prominent and may influence outcome in psychosis. Future reviews could consider prevalence of detachment and compartmentalization separately to give a fuller picture of the prevalence of dissociation in psychosis. Several studies were excluded due to using non-standardised and validated measure of depersonalisation including symptom checklists that had one or two items assessing the presence of depersonalisation. This was an a priori decision to reduce or control measurement error as much as feasible, however, it is possible that it may have omitted relevant forms of depersonalisation.

Limitations of the studies

The majority of studies were not designed to measure the prevalence of depersonalisation symptoms and disorder in psychosis. In this context, sampling was the main limitation of the studies and it is possible that such selection biases may have influenced the findings of this review. Further, few studies sampled or analysed participants at different stages of illness and/or symptom profiles. The studies that did examine these differences in their sample all found statistically significant differences [47, 17, 58]. In this context, studies that provided estimates of the sample as a whole may not be reliable.

The other major limitation of the studies was the potential for measurement error in the depersonalisation estimates due to the lack of use of 'gold standard' diagnostic schedules or interview clarification of self-report measures. As discussed, the concepts addressed in depersonalisation may be difficult to understand and may be interpreted differently by different individuals [20, 59, 48]. Additionally, there is some conceptual overlap with psychosis is the items on depersonalisation scales. As stated, the DES includes an item regarding auditory hallucinations. The CDS also has items that are closely aligned with positive and negative psychotic symptoms such as 'my favourite activities are no longer enjoyable' and 'I have the feeling of having no thoughts at all, so that when I speak it feels as if my words were being uttered by an automaton'. In their development of the DES, Carlson and Putnam [29] stipulated

that participants' responses to the questions should be clarified. An additional concern is that each of the measures used by the studies had different time scales of interest. For example, the DES asks about experiences in adulthood, compared with the CDS which stipulates only experiences in the last six months. In this context, findings from this review must be interpreted with caution and further research using rigorous assessment of depersonalisation symptoms by appropriately trained clinicians is required.

1.5.3. Conclusions

Depersonalisation is common in psychosis with 3.5-54% of those with active psychotic symptoms meeting threshold for Depersonalisation Disorder. When present, depersonalisation symptoms are associated with increased distress and more severe psychotic symptoms. Further research is required to disentangle the relationship between the two phenomena; however, the evidence from this review suggests that there is variation in both experiences that is not accounted for in the other. This finding is consistent with the theory that the two disorders may be related but are distinguishable [4, 37] and suggest the need for routine screening and the development of interventions that target depersonalisation in those with psychotic experiences.

2. A brief CBT intervention for depersonalisation disorder in psychosis: Results from a feasibility randomised controlled trial

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2.1. Abstract

Recent research suggests that depersonalisation symptoms may be prevalent in those with current psychosis symptoms, and, when present, these symptoms are associated with increased impairment. We aimed to establish if a brief, six session treatment protocol adapted from a Cognitive-Behavioural model of Depersonalisation Disorder was feasible to deliver as well as acceptable to participants who also had current psychotic symptoms. A single-blind, randomised controlled trial with a treatment as usual control condition was used to examine our research aims. Feasibility and acceptability estimates examined included rates of referral, acceptance, eligibility, consent, satisfaction and improved skills/knowledge to manage depersonalisation. Over a 10 month period, 21 individuals were recruited to the trial. Data suggest that the intervention was feasible to deliver and highly acceptable to participants. Preliminary clinical data suggest decrease in mean scores of depersonalisation, anxiety and depression though further, appropriately powered analyses are required before any definitive statement can be made. Overall the data suggest that a larger-scale trial is warranted and recommendations for this trial are made.

2.2. Introduction

Psychosis is a general term covering a range of symptoms including delusions, hallucinations, cognitive disturbances and negative symptoms. Approximately four in 1000 people are diagnosed with a psychotic condition in the UK [60], with similar prevalence found in other countries [61], at an estimated cost of £2 billion cost to the UK National Health Service each year [62]. The main treatment for psychotic conditions remains medication focused, however, leading clinicians and academics have bemoaned the lack of progress and relative efficacy of these treatment protocols [63, 64]. Psychological approaches to psychosis have shown some benefit and are now part of national treatment guidance [65]. In such guidance, Cognitive Behavioural Therapy for Psychosis (CBTp), along with Family Intervention approaches, are the main treatments of choice. Recent meta-analyses of CBTp suggest a small effect size [66], however, there has been impassioned debate as to how to measure the impact of CBTp [67, 68]. One particular concern is whether as an overall reduction on measures of positive symptoms should be the focus, or whether distress or other factors would be more appropriate target of treatment [68]. Notwithstanding this debate, there is some consensus further work is needed in understanding the components of interventions that will achieve the best outcomes for individuals diagnosed with psychotic conditions.

One approach, the 'causal-interventionalist' [69], has been proposed to improve the impact of CBTp by focusing on the factors and processes associated with the aetiology and maintenance of psychotic symptoms. The approach is based on cognitive models of psychosis [70, 71] which propose that in predisposed individuals, stressful events can lead to cognitive dysfunction and anomalous experiences. However, unlike general stress-vulnerability models, cognitive models further specify that it is the maladaptive appraisal of such experiences, influenced by heightened emotion and cognitive biases and processes that are influential in the development of distressing positive psychotic symptoms. A number of recent studies have demonstrated that brief interventions targeting processes such as worry, are efficacious in reducing both the targeted factor and psychotic symptoms such as persecutory delusions [72]. A further application of the causal-interventionalist approach would be to target anomalous experiences. In their description of anomalous experiences, Garety and colleagues [70] describe experiences of "heightened perception, actions experienced as unintended, thoughts appearing to be broadcast" (p.190). One type of

anomalous experience, which is relatively common in the psychotic prodrome [73], is depersonalisation.

Depersonalisation is a sense of profound unreality and detachment of oneself and/or the external environment so that it appears changed, empty, remote, or lifeless [74, 6, 7, 9]. Individuals commonly report affective disturbances such as emotional numbing, cognitive disturbances such as mind 'emptiness' and impaired concentration, and physiological/perceptual disturbance such as loss of a sense of body weight and seeing objects as flat and two dimensional [6]. These experiences are not psychotic inasmuch as individuals retain an awareness that these are subjective phenomena that do not reflect reality [6]. These experiences can range from brief transient phenomena to chronic distressing symptoms which cause functional impairment and as such are diagnosable as Depersonalisation Disorder (DPD) (if the symptoms of depersonalisation do not occur exclusively in the course of another psychiatric condition or due to the effects of a substance or organic condition [1]).

Transient symptoms of depersonalisation are found in between 26 and 74% of the general population and between 31 and 66% at the time of a traumatic event [2]. Symptoms of depersonalisation are part of the diagnostic criteria of some psychiatric disorders such as panic and post-traumatic stress disorder [1] with prevalence rates as high as 82.6% in panic disorder reported [2]. It is estimated that approximately 2% of the general population meet the criteria for DPD [2], though some suggest that it is under-detected [74, 7]. Recent studies suggest that symptoms of depersonalisation may also be prevalent in psychosis and that some individuals may also meet threshold for DPD, if one disregards the exclusionary criteria regarding occurrence in another psychiatric condition. For example, a recent systematic review (see Chapter 1 in this volume) found 16 studies that have investigated depersonalisation symptoms in those with a diagnosis of a psychotic disorder, and reported prevalence rates of depersonalisation symptoms of between 33 and 100% (e.g., [17, 47]). Additionally, the threshold for DPD (using a standardised questionnaire) was met by between 3.5 and 54% of those with current psychotic symptoms (e.g., [44, 47]). In the few studies that investigated the impact of depersonalisation, there was a positive correlation between depersonalisation and positive symptoms of psychosis (e.g., [75]).

There has been a long history of debate as to whether depersonalisation and psychosis are the same, related or distinct experiences [76]. There are similarities between the symptoms of both disorders, for example, both may involve a change in the way the individual perceives themselves, their identity and the world around them– what some theorists have referred to as a 'disorder of the self' [10]. Further, there is a well-established body of research that illustrates common aetiological pathways between the two. Individuals with a diagnosis of a psychotic disorder have a disproportionate experience of trauma [77-81], as is in the case in those who experience dissociative disorders [7, 9]. Similarly, the role of heightened emotional experiences, in particular anxiety, have been implicated in both psychosis [72, 25, 70] and depersonalisation [6, 82, 26]. To distinguish between the two, for a symptom to be considered depersonalisation, 'reality testing' must remain intact. Further, as stated above, diagnostic algorithms, such as that found in the DSM [1] have stipulated that DPD should not be diagnosed in those with a current diagnosis of a psychotic condition. The inference is that depersonalisation symptoms and associated distress in the context of psychotic symptoms would be better conceptualised and treated as a psychotic symptom. In this context, the diagnosis and psychological formulation of depersonalisation and DPD is generally lost as it is subsumed under the diagnosis of a psychotic disorder.

However, as stated above, a depersonalisation symptom may be aetiologically related to the psychosis as an anomalous experience [73, 11, 83]. For example, an individual may experience a typical depersonalisation symptom of feeling as though part of their body did not belong to them. The associated distress and cognitive biases in individuals vulnerable to psychosis may lead the person to appraise this unusual perceptual experience as evidence that someone or something is persecuting them or taking over their body. Such a threatening appraisal is in turn likely to lead to heightened distress and maladaptive 'safety' behaviours (such as hypervigilance), thus creating a 'vicious cycle' which serves to exacerbate and maintain the depersonalisation phenomena, in addition to potentially strengthening the conviction in the psychotic appraisal.

An alternative explanation for the relationship between the two symptoms is that they may co-exist as two separate experiences or comorbid conditions. In the above example, the individual may feel as if part of their body did not belong to them, however the dominant psychotic symptom may be feeling paranoid about people on the street saying negative things about them, comments that are unrelated to the unusual feelings in their body. In this

context, the symptoms are not conceptually overlapping but may influence each other by creating heightened emotion (particularly anxiety) in the individual and increase attentional biases such as hypervigilance and symptom monitoring.

Both of these propositions (i.e., depersonalisation as an anomalous experience in pathway to positive symptoms of psychosis and/or comorbidity), would suggest that targeting the depersonalisation symptoms directly may positively influence the depersonalisation, psychotic symptoms, and associated distress. However, perhaps due to the diagnostic overshadowing of psychosis, we are not aware of any published studies of interventions targeting depersonalisation in such a way, despite the availability of psychologically-based treatments, such as CBT for depersonalisation (see [84] for a review).

The cognitive model of DPD [6] emphasises the role of catastrophic appraisals of the depersonalisation experiences. Such appraisals led to heightened emotional states and efforts to control, creating a maintenance cycle similar to that found in panic disorder. These cognitive processes have been empirically validated [82] and an open study of Cognitive Behavioural Therapy for DPD [84], found scores on depersonalisation measures were significantly reduced and one third of participants no longer met criteria for DPD, at end of therapy and at six month follow-up.

There are similarities between the cognitive models of depersonalisation and psychosis, for example, both models stipulate the role of heightened emotion and appraisals of 'odd' or 'anomalous' experiences as key parts of the aetiology and maintenance of distress. In this context, we sought to develop a brief, six session CBT protocol specifically focusing on depersonalisation symptoms in those with current positive symptoms of psychosis.

We sought to address the following research questions:

- Is it feasible to deliver a brief course (six sessions) of CBT that directly targets depersonalisation in those with current psychotic symptoms?
- Is such a course of treatment acceptable to participants?

2.3. Methodology

The detailed protocol for this project has been submitted for publication (see Appendix B), and a summary is provided below. The ethical components of this feasibility study were

approved by the NRES Committee London - Camberwell St Giles on 25 February 2015 (reference number 15/LO/0081 – see Appendix C). The trial is registered on ClinicalTrials.gov (Identifier: NCT02427542).

2.3.1. Design

A single-blinded (researcher blinded) randomised controlled, feasibility trial with a treatment as usual (TAU) control condition was used. Assessments were conducted at baseline and at 10 weeks following randomisation.

2.3.2. Participants

Participants were included if they were adults (aged 18-75), had active psychotic symptoms (scores greater than zero on either scale of PSYRATS [85]), significant depersonalisation symptoms that met threshold for DPD (i.e., a score of greater than 70 on the Cambridge Depersonalisation Scale (CDS) [86]) and gave informed consent. Participants were excluded if they: were currently engaged in CBT or psychotherapy in another setting; did not have capacity to provide informed consent; did not have sufficient English proficiency to engage in CBT; and/or had a primary diagnosis of intellectual disability, head injury, substance misuse or organic cause for psychosis.

2.3.3. Procedure

Research and community mental health clinic registers in the local mental health trust were screened for participants who had reported active symptoms of psychosis; it was not possible to screen directly for experience of depersonalisation as it is not regularly recorded in patient records. Local clinical teams were also approached and asked to refer to the trial. Identified potential participants were sent a letter of invitation, followed by a phone call a week later made by the first author. Willing potential participants were screened via interview to determine if they met the eligibility criteria. If eligible, they were invited to provide informed consent and participate in a baseline interview, after which they were randomly assigned to either the intervention and TAU group or TAU only control group. An online randomisation program with randomly permuted block sizes was used to ensure equal allocation to the two groups. Ten weeks after randomisation, participants were invited to a follow-up interview with a researcher blinded to their allocation. Strategies to maintain

blinding of the researcher included the first author conducting randomisation and contacting participants directly, holding participant materials in a separate work space, conducting intervention sessions (where possible) in separate work space and reminding intervention participants not to inform the researcher when they were contacted about the follow-up interview.

Intervention

The intervention involved six sessions of Cognitive Behavioural Therapy (CBT) focussing on symptoms of, and distress associated with, depersonalisation. Session content was based on the protocol developed for DPD [87, 84] and modified for delivery in the context of psychosis. Individual formulations made links between positive symptoms of psychosis, anxiety and depersonalisation, but the focus was on depersonalisation symptoms specifically, with the rationale that a reduction in depersonalisation would, in turn, lead to an improvement in psychosis symptoms. The intervention aimed to reduce distress through psychoeducation, developing a shared formulation of current and past triggers and maintenance cycles, and installing strategies that targeted cognitive, behavioural and emotional factors involved in the maintenance of the DPD (see Box 1). The intervention components listed did not necessarily map on to individual sessions, rather sessions covered factors determined by the individual formulation of the participant. The intervention was delivered by the first author (a clinical psychologist in training) under the clinical supervision of the author of CBT model for DPD (EH). Supervision was weekly and covered the process and delivery of the intervention and problem solving any impasses. During the intervention period, competence in CBT and fidelity to the DPD protocol were assessed by EH using audio recordings of sessions.

Treatment as usual control condition

For most participants, TAU involved regular contact with a care coordinator, medication and regular reviews with a psychiatrist as provided for under the Care Programme Approach (CPA; [88]).

2.3.4. Data collection

Demographic and relevant clinical data were collected at baseline. Feasibility of trial recruitment was assessed by monitoring rates of referral, contact with potential participants, acceptance of screening offer, eligibility and consent. The feasibility of

delivering the intervention was assessed by monitoring the rates of completion of six sessions of therapy, completion of homework tasks given in each session, and the average number of weeks taken to complete six sessions. Therapist competence and fidelity were assessed by EH using a random selection of 10% of intervention session recordings using a standardised CBT adherence measure [89] and a specifically designed fidelity measure for DPD protocol (See Appendix D). Feasibility of data collection was assessed by: monitoring the rate of data attrition; the number of weeks to obtain outcome data; and the maintenance of blinding.

Box 1: components of CBT intervention for depersonalisation disorder in psychosis

Psycho-education / shared formulation

- Psycho-education about depersonalisation
- individualised CBT shared formulations for current pattern of depersonalisation
- rationale for keeping a depersonalisation diary for homework
- example of depersonalisation diary completion
- assessing factors which influence fluctuations in severity

Behavioural

- Planning and testing impact of environmental / behavioural changes to manipulate and manage depersonalisation symptoms

Emotion regulation

- Examining the role of emotions associated with depersonalisation
- Identifying anxiety/ distress management strategies
- Psycho-education about grounding strategies and practice of these

Cognitive

- Identifying and exploring unhelpful thoughts about depersonalisation
- Cognitive restructuring - Reviewing the evidence for and against unhelpful depersonalisation related thoughts

Thinking processing

- Role of attention in maintaining depersonalisation
- Reducing hyper-vigilance / symptom monitoring / checking behaviours
- Acceptance and mindfulness approaches to depersonalisation

Review and relapse prevention

- Summary of what has been learnt from the sessions
- Depersonalisation action plan

After each session, participants were given a small 'homework' task to practice techniques introduced in the session and the monitor symptoms using a diary.

The acceptability of the intervention was monitored by participant ratings on a five-point Likert scale on a range of parameters [90, 91] including expectations of progress (from 'a lot of progress' to 'things to get a lot worse'), satisfaction ('very satisfied' to 'very dissatisfied'), the extent to which they gained new knowledge/skills ('strongly agree' to 'strongly disagree') and the relationship to the therapist including aspects of competence, support and warmth and friendliness ('very much' to 'not at all'). In addition, acceptability was further assessed by asking open ended questions about the most helpful and unhelpful aspects of the intervention.

Data on psychopathology were collected at baseline and follow-up interview using the following standardised measures:

- Cambridge Depersonalisation Scale (CDS) [86]. The CDS is a 29 item scale that measures the severity of trait depersonalisation symptoms over the preceding six months. For each item, frequency (Likert scale 0=never to 4=all the time) and duration (Likert scale 1=few seconds to 6=more than a week) are collected; each item maximum is therefore 10. A total scale score is the sum of each item, with a maximum of 290. Scores greater than 70 have been shown to reliably predict clinical diagnosis of DPD using DSM criteria. In order to measure change, the wording of the trait CDS was changed to measure the severity of depersonalisation symptoms *over the preceding month*. A factor analysis of the CDS [92] identified four likely factors:
    - *Alienation from surroundings* which includes items such as 'I feel strange, as if I were not real or as if I were cut off from the world', 'my surroundings feel detached or unreal…', and 'what I see looks 'flat' or 'lifeless', as if looking at a picture';
    - *Emotional Numbing* which includes items such as 'when I weep or laugh, I do not seem to feel any emotions at all', 'I find myself not feeling any affection towards my family and close friends', 'I have the feeling of not having any thoughts at all…' and 'the smell/flavour of things no longer gives me a feeling of pleasure or dislike';
    - *Anomalous subjective recall* which includes items such as 'I feel detached from memories of things that have happened to me…', 'it seems as if things that I have recently done had taken place a long time ago…', and 'when in a new situation, it feels as if I have been through it before';
    - *Anomalous Body Experiences* which includes items such as: 'I have a feeling of being outside my body', and 'whilst doing something I have the feeling of being a 'detached observer' of myself.'
- The level of distress, preoccupation, impairment and understanding of depersonalisation symptoms was also collected using items derived from PSYRATS (see below).
- The Psychotic Symptom Rating Scale (PSYRATS; [85]). The PSYRATS was used to monitor changes in psychotic symptomatology between baseline assessment and outcome interview. The PSYRATS consists of two subscales measuring the presence

and typology, beliefs/conviction, distress and disruption associated with auditory hallucinations and delusions. The auditory hallucination (AH) subscale has 11 items and the delusions (D) subscale has six items. All items are scored between 0 and 4. For example, for item 1 in the AH scale 0=voices are not present to 4= voices are present continuously. The maximum score for the AH and D subscales are 44 and 24 respectively.

- Beck Depression Inventory (BDI; [93]). The BDI-II is a 21 item self-report scale, rated on a 4 point Likert scale (0= symptom not present to 3 = symptom present with significant distress/impairment) measuring common symptoms of depression. Total scores range from 0 to 63. Total scores of less than 13 indicate minimal depression, scores 14-19 indicate mild depression, scores 20-28 indicated moderate depression and scores above 29 indicate severe depression.
- Beck Anxiety Inventory (BAI; [94]). The BAI is a 21 item self-report scale with the same scoring as the BDI. Total scores are interpreted as follows: 0-9 indicates minimal anxiety; 10-16 indicates mild anxiety; 17-29 indicates moderate anxiety; and 30-63 indicates severe anxiety.
- Post-traumatic Diagnosis Scale (PDS, [95]). The PDS has 49 items including a checklist of potentially traumatising events and an indication of the distress, intrusive thoughts, avoidance and hyperarousal in the last month. There is a total score ranging from 0 to 51 with 1-10 considered 'mild', 11-20 'moderate', 21-35 'moderate to severe' and greater than 36 'severe'.
- Structured clinical interview for DSM-IV dissociative disorders (SCID-D)[96] is a structured clinical interview using DSM criteria for DPD. It includes nine items addressing the presence and frequency of common depersonalisation symptoms, the duration and frequency of the most severe instance of depersonalisation, functional impairment, distress and exclusionary criteria such as: not the result of drugs, organic issues and does not occur exclusively in the context of other psychiatric condition such as psychosis.

2.3.5. Analysis

As this is a feasibility study and the aim was to provide estimates of key parameters for a future trial rather than to be powered to detect statistically significant differences, an a priori power calculation was not conducted [97]. Instead, we aimed to recruit sufficient participants to provide reasonable estimates of study parameters. Based on the feasibility and time allocated to this work, it was aimed to recruit 30 participants. A recently completed research study (Emma Davies, unpublished manuscript) recruiting people from the same pools as proposed for this trial suggested that approximately 50% of participants reporting depersonalisation experiences met criteria for DPD. Assuming 50% of those screened would meet the eligibility criteria, we anticipated needing to screen 60 participants to obtain our target sample. In order to screen 60 participants, we anticipated: needing to make an initial contact attempt with 160, 100 of whom would be contactable (i.e., a 60% contact rate); and that 60% of those contacted would accept the offer of screening for eligibility screening (i.e., 60% acceptance rate). These anticipated rates of contact and acceptance corresponded to 16 intial contact attempts, 10 actual contacts and six screening interviews per month.

Analyses were primarily descriptive. Descriptions of continuous data, including clinical data and sample characteristics, were analysed using mean, standard deviations (SD), median and Interquartile Range (IQR). Frequencies and proportions were used to analyse categorical clinical or demographic variables.

Feasibility of trial procedures were assessed using proportions and their estimated 95% confidence intervals (CIs) for rates of: referral (number of referrals divided by total approached); contact (number of contacts made divided by total approached); acceptance (number agreeing to be screened divided by number approached); eligibility (number of eligible participants divided by number screened and number approached); consent (number consented divided by number approached); therapy and homework completion (number completing the full six sessions of the intervention divided by number of participants in the intervention group; average number of treatment sessions attended; and number completing all homework tasks divided by number of participants in the intervention group); average number of weeks taken to complete the intervention; data attrition (proportion of follow-up assessments completed); and maintenance of blinding

(incidences of unblinding of researcher divided by number of follow-up assessments). Therapist competence was presented as proportion (the total score divided by applicable items) with estimated 95% confidence intervals for the CBT adherence and DPD fidelity measures. Acceptability of trial procedures was assessed using proportions and their estimated 95% confidence intervals for rates of expectations and actual progress (proportion rating at each point on Likert scale) and satisfaction with therapy, therapist and tasks (proportion rating at each point on Likert scale). Data from open-ended questions regarding the most helpful and least helpful aspects of the intervention were collated and grouped according to themes.

To inform a sample size calculation for a future trial, the population variance of the CDS at baseline was determined using the upper 80th nonparametric bootstrap percentile of confidence intervals around the estimates [98]. An estimate of effect size was set at the difference between the intervention and control groups' median change scores on the CDS at follow-up.

2.4. Results

A total of 21 participants were eligible and consented to the trial. Eleven were randomised to the intervention group, and 10 to the control group. The demographic characteristics of the sample are shown in Table 1 and the recruitment process is illustrated by the CONSORT diagram in Figure 1. There were some demographic differences between the two groups, which is likely to be due to the low sample size. For example, there were more males (71%) than females overall, with a greater imbalance in the intervention group (82%) than in the control group (60%). Similarly there were more White British in the intervention group (64%) than in the control group (40%). There was a similar distribution between the groups in terms of age, marital status and other characteristics. Interestingly, the vast majority (95%) had received psychological therapy in the past.

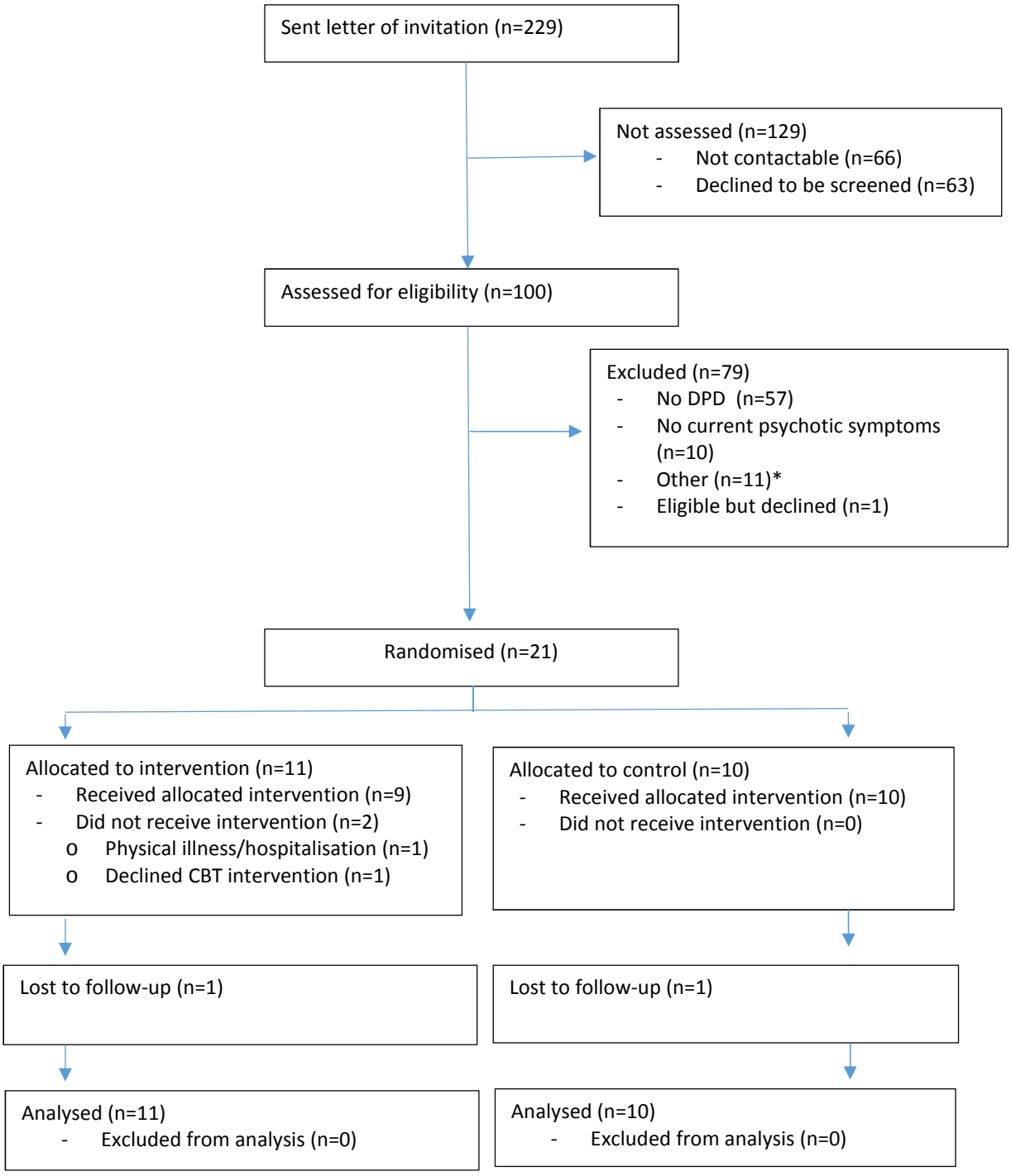
All participants met DSM criteria for DPD (not including the criterion regarding occurrence during another disorder). The mean total score on the CDS for the overall sample was 103.8 (SD 32.7), over the clinical cut-off of 70. The mean scores on the PSYRATS-AH and PSYRATS-D for the overall sample at baseline were 24.7 (SD 13.7) and 13.3 (SD: 8.1), which is comparable to those presenting to a local psychological therapies service in terms of auditory hallucinations, but lower in terms of delusions [99]. The mean scores for BAI and

BDI were 33.1 (SD: 12.3) and 35.5 (SD: 11.5) indicating severe levels of both anxiety and depression. In terms of the PDS, distress score for the sample at baseline were 23.5 (SD: 14.9) indicating moderate levels of post-traumatic distress.

Table 1 – Demographic characteristics of the sample at baseline

		Intervention (n=11)	Control (n=10)	Total (n=21)
Gender (n, %)	Male	9, 81.8	6, 60.0	15, 71.4
	Female	2, 18.2	4, 40.0	6, 28.6
Age (mean, sd)		42.6 (14.0)	38.2 (12.1)	40.5 (13.0)
Ethnicity (n,%)	White British	7, 63.6	4, 40.0	11, 52.4
	Black/Black British	1, 9.1	3, 30.0	4, 19.1
	Asian/Asian British	1, 9.1	1, 10.0	2, 9.5
	White European/White Other	1, 9.1	1, 10.0	2, 9.5
	Mixed	1, 9.1	1, 10.0	2, 9.5
Marital status (n,%)	Married/Civil partnership	1, 9.1	1, 10.0	2, 9.5
	Co-habiting	1, 9.1	2, 20.0	3, 14.3
	Divorced	2, 18.2	0, 0	2, 9.5
	Single	7, 63.6	7, 70.0	14, 66.7
Level of education (n,%)	None	3, 27.3	1, 10.0	4, 19.1
	GCSEs/level 2	3, 27.3	5, 50.0	8, 38.1
	A-Levels	2, 18.5	2, 20.0	4, 19.1
	Diploma or higher	3, 27.3	2, 20.2	5, 23.8
Clinical diagnosis (n,%)	Schizophrenia	8, 72.7	8, 80.0	16, 76.2
	Bipolar	2, 18.2	0, 0	2, 9.5
	Depression with psychotic symptoms	1, 9.1	2, 20.0	3, 14.3
Age at first: (mean, sd)	depersonalisation symptoms	18.3 (12.8)	21.0 (11.8)	19.5 (13.1)
	psychosis symptoms	24.2 (10.3)	25.7 (9.9)	24.8 (121)
	contact with mental health services	26.2 (11.0)	27.2 (9.7)	26.6 (10.2)
Duration (years) of: (mean, sd)	Depersonalisation symptoms	24.4 (17.7)	17.2 (14.1)	20.9 (16.1)
	Psychosis symptoms	18.5 (15.2)	13.5 (10.2)	16.1 (13.0)
Previous psychological therapy (n,%)	Yes	11, 100	9, 90.0	20, 95.2
	No	0, 0	1, 10.0	1, 4.8

Figure 1 - CONSORT diagram



Notes:
*Other category includes – unable to consent (n=6), currently engaging in therapy (n=3), needing an interpreter (n=1), unable to speak (laryngectomy) (n=1).

Over a period of 10 months (between April 2015 and January 2016), an attempt was made to contact 229 individuals to offer them the opportunity to participate in the trial. At the end of the recruitment period, 21 (9.2% of those contacted) individuals had consented. The overall recruitment statistics for the trial are summarised in Table 2.

Table 2 Feasibility estimates of recruitment

Recruitment process	N	Proportion of initial contact attempts (95% Confidence Intervals)	Proportion of contacted (95% Confidence Intervals)	Proportion of screened (95% Confidence Intervals)
Initial contact attempts (letters)	229			
No response	66	28.8 (23.3 – 35.0)		
Total contacted	163	71.2 (65.0-76.7)		
Declined screening	63	27.5 (22.1-33.6)	38.7 (31.5-46.3)	
Screened	100	43.7 (37.4-50.1)	61.3 (53.7-68.5)	
Not eligible – Total	78	34.1 (28.2-40.4)	47.9 (40.3-55.5)	78.0 (68.9-85.0)
Not eligible – Depersonalisation	57	24.9 (19.7-30.8)	35.0 (28.1-42.6)	57.0 (47.2-66.3)
Not eligible – Psychosis	10	4.4 (2.4-7.8)	6.1 (3.4 – 10.9)	10.0 (5.5-17.4)
Not eligible – Other	11	4.8 (2.7-8.4)	6.7 (3.8 – 11.7)	11.0 (6.3-18.6)
Eligible but declined	1	0.4 (0.08-0.02)	0.6 (0.1 – 3.4)	1.0 (0.1-5.5)
Eligible and consented	21	9.2 (6.1-13.6)	12.9 (8.6 – 18.9)	21.0 (14.2-29.9)

2.4.1. Feasibility estimates of recruitment (rate of referrals, contact, acceptance and eligibility)

Of the 229 attempted contacts, 24 individuals were referrals from clinicians in the local mental health trust, making the proportion of referred participants 10.5% (95% CI: 7.1-15.1). Of these referrals: 22 were contacted (91.7% (95% CI: 74.2-97.7)), 18 accepted the offer of screening (75.0% (95% CI: 55.1-88.0)); 10 were eligible (41.7% (95% CI 24.7-61.2)); and 9 consented (37.5%, (95% CI 21.2-57.3)).

The remaining 205 individuals were found from research registers (i.e., they had given their permission for researchers to approach them). The contact rate was 71.2% (i.e., 163 of 229 attempted contacts – see Table 2 for confidence intervals), at an average of 16.3 per month over the course of recruitment. Of those who were contacted, 63 (38.7%) declined the offer to be screened. Reasons for declining screening included: not wanting to participate in research generally (n=16); not having the time, including concerns that the research was too much of a commitment in terms of number of sessions (n=14); being too unwell (n=5); not interested (no further reason given) (n=28); and not enough remuneration offered for the

assessments (n=1). In this context, 100 individuals agreed to be screened for the trial making the acceptance rate of 61.3%, and an average screening rate of 10 per month.

The number of individuals meeting the eligibility criteria was lower than expected. Of the 100 individuals who agreed to be screened, 22 met the eligibility criteria. The most common reason for not meeting eligibility criteria was having no current depersonalisation phenomena or not meeting clinical threshold on the CDS (n=57, 57%). Other reasons for not meeting eligibility criteria were: having no current experience of psychotic symptoms (n=10); currently engaging in therapy (n=3); not able to provide informed consent (intellectual disability or too mentally unwell; n=6); and language difficulties (n=2).

With one exception, all of those who were eligible for the study agreed to participate, making a consent rate of 95.5% (95% CI: 78.2-99.2). The one individual who was eligible but declined participation (a referral) was put on a waiting list for a specialist clinic and decided it was preferable to wait for this support rather than engage in brief therapy as part of the trial.

In summary, the rates of contact (71.2%) and acceptance of screening (61.3%) were within expected ranges, but the 22% rate of eligibility was much lower than the expected 50%. In this context, the overall recruitment rate and number was lower than projected and the sample target was reduced to 20 individuals midway through the recruitment period.

2.4.2. Feasibility and acceptability estimates regarding the delivery of the intervention

Eleven participants were randomised to receive the intervention. Of these, nine (81.8%, 95% CI: 52.3-94.8) participants completed the full six sessions. Two participants did not complete the full six sessions, making a 'drop-out' rate of 18.2% (95% CI: 5.1-47.7). Of those who did not complete: one attended two sessions before declining further sessions citing a difficulty with the cognitive behavioural therapy approach; one individual attended one session before declining further sessions due to high levels of anxiety regarding leaving the home (home visits were also declined). For the nine participants who completed the intervention, the six sessions were delivered over an average of 8.3 weeks (maximum allowed was 10).

Sessions were delivered in outpatient clinics near to the home of the participant for all participants with two exceptions. Two participants found leaving the home too difficult due to high levels of anxiety, and therefore sessions were conducted at these participants' homes.

Homework tasks were given at the end of each session and completion was noted at the beginning of the next session. Five participants completed all five homework tasks (no homework monitored after the final session) giving 100% completion amongst 55.5% (95% CI: 26.7-81.1) of the intervention sample. The average completion was 4, giving an overall homework completion rate of 80% (95% CI: 37.5-96.4).

Therapist competence was rated using a random selection of 10% of recorded sessions. The average item rating on the CBT competence measure was 5.2/6, making a competence rate of 86.4% (95% CI: 82.2-89.6). The average item rating on the DPD fidelity tool was 5.1/6, making a fidelity rate of 85.9% (95% CI: 81.7-91.8).

2.4.3. Components of the intervention delivered.

There were six potential components or topic areas to be covered in the intervention (see Box 1). For the nine individuals who completed the intervention, an average of four topic areas were covered. Two participants received all six components of the intervention. All nine participants received the psychoeducation and formulation, emotional focus and the review/relapse prevention components. The least frequent area covered was cognitive focus including identifying and working with thoughts about depersonalisation (n=3), followed by behavioural focus (n=5) and cognitive processes (n=7). The focus of the sessions and components covered were determined by the individual formulation of the participant and their progress through the focal areas. For example, one participant, with a complex history of abuse had some difficulty managing emotions and it was therefore decided to focus on the formulation and managing emotion components with this participant. Two example shared formulations are shown in Appendices E and F.

2.4.4. Acceptability of the intervention

At follow-up interview, participants who had completed the intervention (n=9) were asked about their expectations for progress at the beginning of therapy. Fifty-six percent (95% CI: 26.7-81.3) reported that they had expected to make 'no progress' and the remaining 44% (95% CI: 18.8-73.3) reported that they had expected to make a 'little progress'. In terms of their impressions of actual progress made, six participants (66.7%, 95% CI: 35.4-87.9) reported that they made 'a lot of progress', one participant (11.1%, 95% CI: 1.9-43.5) had made 'a little progress', and two participants (22.2%, 95% CI: 6.3-54.7) thought they had made 'no progress'. Regarding their expectations for the future, six participants (66.7%, 95% CI: 35.4-87.9) expected to make 'a lot of progress', one participant (11.1%, 95% CI: 1.9-43.5) expected to make 'a little progress', one (11.1%, 95% CI: 1.9-43.5) expected to make 'no progress' and one (11.1%, 95% CI: 1.9-43.5) expected 'things to get a little worse'.

In terms of satisfaction with the therapy, six participants (66.7%, 95% CI: 35.4-87.9) reported they were 'very satisfied', two reported they were 'satisfied' (22.2%, 95% CI: 6.3-54.7) and one (11.1%, 95% CI: 1.9-43.5) reported they were 'indifferent'. All participants (100%, 95% CI: 70.9-100) reported that the therapist understood their problems 'very well'. There were high levels of confidence in the therapist with eight participants (88.9%, 95% CI: 56.5-98.1) stating they could trust the therapist 'a lot' and one participant (11.1%, 95% CI: 1.9-43.5) reporting 'a little'. Homework tasks were rated as 'very helpful' by seven participants (77.8%, 95% CI: 45.3-93.7) and 'slightly helpful' by two participants (22.2%, 95% CI: 6.3-54.).

Specific questions and responses about new skills and knowledge about depersonalisation are shown in Table 3 and suggest that the majority of the recipients of the intervention either 'agreed' or 'strongly agreed' that they had gained new knowledge and skills. However, three 'disagreed' or were 'unsure' that they had more control over their experiencing of depersonalisation.

The therapeutic relationship was rated highly by all intervention recipients. All nine recipients (100%) agreed 'very much' that the therapist was 'sympathetic and caring', 'competent', 'warm and friendly', 'supporting and encouraging' and all participants (100%) disagreed 'very much' that the therapist was 'not possible to get along with'.

In terms of the most helpful aspects of the intervention, there were a range of responses and some participants stated more than one aspect. The most frequent category of responses was 'coping strategies to manage mood and worry' (n=5) about the depersonalisation.

For example,

> *"It was really helpful for depersonalisation and mood/anxiety. I'm not worried about the feeling in my hands anymore. I have no more panic and I'm feeling a lot better. I have learned a lot. I used to have panic attacks, but not anymore. None in the 10 weeks, when I used to have three a week."*

Three participants stated that the most helpful aspect of the therapy was the relationship with the therapist. For example,

> *"I was getting somewhere. I could trust someone. I told [the therapist] things that I hadn't told others. [The therapist] was very sympathetic and a good listener."*

Three participants stated that learning about maintenance cycles, triggers and having these aspects drawn out for them was the most helpful aspect of the intervention. One participant said the therapy was not long enough to determine the most helpful aspects.

Participants were also asked about the least helpful aspects of the intervention. Four participants (44.4%, 95% CI: 18.8-73.3) could not think of anything that was not helpful. Four participants (44.4%) stated that six sessions was not long enough. One participant (11.1%, 95% CI: 1.9-43.5) said it would have been helpful to see notes from another patient with similar difficulties and to read how they had recovered. Interestingly, three (33.3%, 95% CI: 12.1-64.6) participants reported that six sessions felt about right to address depersonalisation, however, all three wanted to continue engaging in therapy to address further issues including self-esteem and trauma.

The one intervention participant who declined further sessions after the first session but did attend the follow-up interview rated the intervention highly but stated that the:

> *"Timing meant journeys were too stressful. I would have liked to continue but travel was too hard. I was too worried at the time about getting home to concentrate on sessions."*

Table 3. New skills and knowledge about depersonalisation

	n, %, 95% CI:				
Through therapy I gained:	*Strongly agree*	*Agree*	*Unsure*	*Disagree*	*Strongly disagree*
A better understanding of how my depersonalisation developed	*5, 55.6 (22.2-88,9)*	*3, 33.3 (10.0-66.7)*	*1, 11.1 (0.0-40.0)*	-	-
A better understanding of what keeps my depersonalisation going	*5, 55.6 (22.2-88.9(*	*2, 22.2 (0.0-50.0)*	*2, 22.2 (0.0-50.0)*	-	-
A better understanding of my experiences generally	*5, 55.6 (22.2-88.9)*	*3, 33.3 (10.0-66.7)*	-	*1, 11.1 (0.0-33.3)*	-
Techniques or methods to cope with my depersonalisation	*6, 66.7 (20.1-100.0)*	*2, 22.2 (0.0-50.0)*	-	*1, 11.1 (0.0-33.3)*	-
Better control over my depersonalisation	*5, 55.6 (20.0-88.9)*	*1, 11.1 (0.0-33.3)*	*1, 11.1 (0.0-37.5)*	*2, 22.2 (0-50.0)*	-
A greater ability to cope with my moods and anxiety	*4, 44.4 (12.5-77.8)*	*3, 33.3 (10.0-66.7)*	*1, 11.1 (0.0-33.3)*	*1, 11.1 (0.0-33.3)*	-
A better understanding of my thoughts and how to manage them	*5, 55.6 (20.0-88.9)*	*4, 44.4 (12.5-77.8)*	-	-	-
A better understanding of how I think and how to manage that.	*4, 44.4 (12.5-77.8)*	*3, 33.3 (10.0-66.7)*	*1, 11.1 (0.0-33.3)*	*1, 11.1 (0.0-33.3)*	-

2.4.5. Feasibility estimates of data collection

Follow-up assessments were attended by 19 of the 21 participants making an outcome rate of 90.4 (95% CI: 71.1-97.4). There was equal attrition between the two groups. One participant from the intervention group who declined further sessions of the intervention after attending two also declined further contact with the research study. One participant from the control group did not attend an arranged follow-up interview and could not be reached within the study period. Follow-up interviews were conducted on average 11.6 weeks after randomisation (range 9.3-16.9).

Blinding of the research assistant was maintained in 17 of the 19 (87.5%, 95% CI: 68.6-97.1) follow-up interviews conducted. In one incident, the participant themselves told the research assistant of their group allocation at follow-up interview. In the other incident, an individual who was randomised to the intervention group attended the research assistant's office for the first intervention session by mistake.

2.4.6. Clinical Outcome data

Summary statistics for clinical outcomes are shown in Table 4. With such a small sample size it was not possible to test for statistical differences between or within the groups; however, several patterns can be noted. The mean total score on the CDS was higher in the intervention group compared to the control group at baseline. However, at the end of intervention assessment, the mean total score in the intervention group had reduced. In contrast, the mean total score in the control group had increased. A similar pattern was observed in the other clinical outcomes. With the exception of the PDS, all other mean scores of outcomes reduced in the intervention group at follow-up. In the control group, with the exception of PSYRATS-D scale which decreased slightly, all other mean scores on the outcomes stayed approximately the same.

2.4.7. Phenomenology of depersonalisation in psychosis.

Table 5 provides a summary of the phenomenology of the depersonalisation symptoms and response to therapy in the intervention group. The table shows the two most frequently experienced CDS factors for each participant. The most common factor endorsed (n=8) was

Alienation from surroundings, followed by Emotional Numbing (n=6), Anomalous Subjective Recall (n=4) and Anomalous Body Experiences (n=2).

In all but three of the 11 participants, depersonalisation symptoms were separate to the content of delusions or other psychotic symptoms. When separate or distinct from delusional content, participants were able to describe their depersonalisation experiences 'as if' and therefore would meet DSM-V criteria for DPD, comorbid with their psychotic disorder (excluding the criterion that precludes diagnosis in the context of a psychotic disorder). In contrast, for those participants where there was a link between their depersonalisation and psychotic symptoms, the depersonalisation experience was explained, at least partly, by a delusional interpretation. For example, one participant for whom items addressing Anomalous Body Experiences were amongst the most frequently endorsed, had a firm belief that his body was, in fact, irrevocably changed.

A reduction in CDS total score was observed in all but one of the participant who completed the intervention, and the mean change score was 22.5 (95% CI -0.24 – 43.9). In six of the nine (66.7%) participants CDS total scores dropped below the clinical cut-off at follow-up. By comparison, in the control group, a reduction in CDS total score was observed in 5 of the 9 participants (55%) for whom follow-up data were available, with an average change score of 8.9 (95% CI -37.4-18.1); three participants' scores (33.3%) dropped below the clinical cut-off for DPD on the CDS.

It is of note that the three intervention participants who still met threshold for DPD at follow-up experienced their depersonalisation symptoms frequently (see Table 5), and two of the three had a link between the depersonalisation symptom and their psychotic symptoms.

Table 4. Summary of clinical data in the two groups at baseline and follow-up

	Control				Intervention			
	Baseline (n=10)		Follow-up (n=9)		Baseline (n=11)		Follow-up (n=10)	
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)
CDS total score	98.3 (24.5)	90.0 (80.5-115)	108.2 (65.2)	82.0 (61.5-167.0)	108.8 (39.3)	97 (80-141)	89.2 (52.6)	71.5 (42.4-149.0)
PSYRATS-AH	25.0 (13.7)	31.5 (18-34.2)	24.7 (11.9)	27.0 (17.0-34.0)	24.4 (14.5)	29 (12-75)	17.5 (16.5)	18.0 (0.0 – 33.5)
PSYRATS-D	11.1 (9.8)	15.0 (0 – 19.5)	7.6 (8.3)	4.0 (0.0- 16.5)	15.3 (5.9)	17 (12-20)	12.0 (7.8)	12.0 (4.5-19.5)
BAI	28.2 (12.5)	28.0 (18.0-39.0)	28.4 (13.8)	32.0 (18.5-38.0)	37.5 (10.7)	36.0 (34.0-43.0)	29.4 (18.5)	29.5 (12.7-41.7)
BDI	31.6 (14.9)	33.5 (16.7-44.7)	32.3 (15.6)	27.0 (17.5-47.0)	35.5 (11.5)	34.0 (24.0-48.0)	29.1 (19.6)	27.5 (10.5-48.0)
PDS distress	22.6 (16.8)	24.0 (6.7-40.7)	23.7 (12.7)	28.0 (14.5-34.0)	24.4 (13.8)	28.0 (16.0-35.0)	31.0 (10.5)	29.5 (24.5-39.5)

Abbreviations: AH: auditory hallucinations; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; D: delusions; CDS: Cambridge Depersonalisation Scale; IQR: interquartile range; PDS: Post-traumatic Diagnostic Scale; PSYRATS: Psychotic Symptom Rating Scale; SD: standard deviation.

Table 5 Typology of depersonalisation experiences and response in intervention group participants at follow-up

ID	Psychosis	Depersonalisation factor^ (frequency at baseline)	DP linked to psychosis*	Trauma	DPD[!]	Change in CDS	Change in Depersonalisation:			Change in PSYRATS:		Change in		
						Total	Distress	Preocc-	Impair-	AH	D	BAI	BDI	PDS
1	AH & D	Alienation (100%) Anomalous body (83%)	Yes	No	Yes	-30	-1	0	0	4	2	-1	-4	n/a
2	AH & D	Anomalous subjective recall (55%) Alienation (50%)	No	CSA	No	-56	-2	-1	-1	0	-5	-11	6	-5
3	AH & D	Alienation (100%) Anomalous subjective recall (80%)	Yes	CSA+	Yes	21	0	2	0	-1	1	16	5	21
4	D	Alienation (50%) Anomalous subjective recall (40%)	No	War	No	-36	-3	-3	-1	n/a	-4	-17	-15	-24
5	AH & D	Alienation (81%) Emotional numbing (38%)	No	No	No	-46	-2	-2	-1	-7	n/a	-21	-31	n/a
6	D	Anomalous body (58%) Alienation (56%)	No	CSA	No	-36	-3	-3	-1	n/a	0	-17	-16	-24
7	AH & D	Emotional Numbing (67%) Anomalous subjective recall (60%)	No	No	Yes	-15	-1	-1	1	0	0	-28	-16	8
8	D	Alienation (94%) Emotional numbing (83%)	Yes	No	No	-68	-1	-2	-1	n/a	-8	0	0	-1
9	D	Emotional numbing (75%) Alienation (56%)	No	No	No	-31	-1	1	-1	n/a	0	-4	-2	11
10**	D	Emotional numbing (67%) Alienation (56%)	No	No	Yes	46	-2	-2	1	n/a	0	12	9	-9
11**#	AH & D	Alienation (69%) Emotional numbing (54%)	No	CSA	-									

Notes:

^ DP experience summarised using Sierra et al [92] factor analysis which generated four factors: 'anomalous body experience', 'emotional numbing', 'anomalous subjective recall', 'alienation from surroundings'. Two most frequently endorsed factors presented for each participant. Percentage = average frequency of experience – 100% = all the time; 50%= half of the time.

* DP linked to psychosis when there was a delusional interpretation of the depersonalisation symptom; ** Did not complete the intervention; #Lost to follow-up; ! DPD: threshold met for DPD (using CDS cut-off). Change scores (-) denotes a decrease in score at follow-up

Abbreviations: AH: auditory hallucinations; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; D: delusions; CDS: Cambridge Depersonalisation Scale; CSA – childhood sexual abuse; CSA+ - child hood sexual abuse plus neglect and physical violence; DP: Depersonalisation; DPD: Depersonalisation Disorder; impair: CDS impairment score; PDS: Post-traumatic Diagnostic Scale; preocc: CDS preoccupation score; PSYRATS: Psychotic Symptom Rating Scale.

2.4.8. Estimate of sample size

To determine the likely sample size for a future trial, the upper 80% confidence interval of the standard deviation of CDS total score at baseline was used (i.e., 49.4). We are not aware of other studies using the CDS to measure change. In this context, we decided to use the difference in median change scores on the CDS between the two groups at follow-up as an estimate of effect size. The median change score in the intervention group was 30.5 and 7 in the control group, making a difference of 23.5. To be conservative, we rounded down to 20. Dividing this change score by the upper 80% confidence interval of the CDS total standard deviation at baseline generates an estimate of Cohen's d (effect size) of 0.40. Using these metrics, a total sample of 200 (100 in each group) would be able to detect such a change in CDS total scores with 80% power, using a two group t-test with a 0.05 two sided significance level.

To obtain such a sample, using the overall consented rate for the study (i.e., 9.6% (95% CI: 6.1-13.6)), approximately 2, 083 (range 1,470-3,278) individuals would need to be approached (if using the same methodology). However, if using a referral based system, the estimate of eligibility rate would be approximately 37.5 (range 21.2-57.3), making an initial contact attempt required with 533 (range 349-943) individuals.

2.5. Discussion

This paper describes the feasibility and acceptability of a novel, brief, six session intervention for DPD in the context of current psychotic symptoms. To the authors' knowledge, this is the first study of such an intervention. The findings suggest that this intervention is both feasible to deliver and acceptable to participants. The study was not powered nor designed to examine clinical effect, however, there is some suggestion of a positive impact of the intervention, with 66% of those receiving the intervention no longer meeting threshold for DPD at follow-up, compared to 33% in the control group. Reductions were also observed on other measures of interest including psychotic symptoms, depression and anxiety.

Regarding the feasibility of recruitment, contact and acceptance (of screening) rates were within expected ranges. Furthermore, only one eligible participant did not provide consent suggesting a high level of interest in the intervention amongst those meeting criteria. However, the eligibility rate of 22% of people screened, was substantially lower than the expected rate of 50%. A recent systematic review (Chapter 1 in this volume) found four studies that used the same methodology (i.e., CDS threshold) to determine the presence of

DPD in those with current psychotic symptoms. In these four studies, the rate of DPD varied between 3.5% and 54%; however questions were raised about the validity of such findings since none of the studies used a clinical interview to clarify the participants' self-reported depersonalisation symptoms on the CDS. Several authors [100, 101] have suggested that individuals who are experiencing current psychotic symptoms may have difficulty understanding the questions regarding depersonalisation symptoms, and thus may over-report their experience of such symptoms. In contrast, this study administered the CDS as part of a clinical interview, and all responses were explored and clarified to determine if the participant understood the item and that their responses were relevant. It is possible that this rigorous methodology may provide a closer estimate of the prevalence of DPD comorbidity in psychosis; however, this finding needs to be replicated. If this is an accurate representation, approximately one in five individuals may have a true comorbid condition that could benefit from formulation and treatment. However, as depersonalisation symptoms are not routinely noted in clinical records, in this study initial contact attempts were made to individuals who had notes suggesting they had current psychotic symptoms only. Based on the consent estimates found in this study, using this broad recruitment strategy, a future trial would need to contact up to 16 individuals to recruit one (using the lower confidence interval for consent rate). Furthermore, considering the estimated sample size of 200 individuals required to detect a moderate effect size in a future trial, this is likely to render a future trial extremely onerous if the same methodology is used. In contrast, the consent rate amongst referrals from clinicians was much higher and would make recruitment more feasible. In summary, consent rates (i.e., those who accepted screening, were eligible and gave consent to participate), and therefore the feasibility of recruitment to a future trial, could be improved if routine assessments of depersonalisation were completed at entry to clinics and thus facilitating more targeted recruitment efforts (i.e., referral based).

Overall the intervention was highly acceptable to participants. Only two individuals dropped out of treatment: one due to not finding the CBT approach helpful and another due to high levels of anxiety preventing him from attending and accepting home visits. For all other participants, six sessions were completed and homework compliance was high. Overall, responses from the participants who completed the intervention suggest a high level of satisfaction with the intervention including: actual and expected future progress; developing new skills and knowledge about depersonalisation symptoms; and the delivery of the intervention by the therapist. Participants who expressed some concerns were those who remained above diagnostic threshold for DPD. Understandably, such participants were unsure of the practical impact of the intervention, but rated the therapist highly and expressed a desire to continue with the intervention beyond the six sessions.

The study was not powered nor designed to measure treatment response or effect size, however, the summary data presented were promising. Most individuals receiving the intervention had reduced scores on depersonalisation and dropped below the diagnostic threshold for DPD. This is similar to the finding from the open study of CBT for DPD [84] where one third of participants no longer met the criteria for DPD at the end of therapy. Those who remained above diagnostic threshold at follow-up were, in the majority of cases, those participants where there was a link between the depersonalisation and psychotic symptoms, most typically through a delusional interpretation of the depersonalisation symptom (for example, my body has reduced density) and who had very high initial scores on the CDS. Such individuals may represent a more severe subgroup that require more intensive treatment; something that warrants further investigation.

Most individuals in the intervention group also had reduced scores on measures of anxiety and depression, supporting the link between depersonalisation and distress [87, 26]. There were some reductions on scores of psychotic symptoms amongst some participants, but overall there appeared to be little effect. In this context, these data do not provide support for one of the hypothesised links between depersonalisation and psychosis symptoms (i.e., depersonalisation as an anomalous experience in the aetiology of psychosis). Rather these data provide some support for the second proposal – that they are comorbid conditions. However, longer follow-up and larger sample sizes are required to clarify these potential relationships.

The most frequent comment regarding unhelpful aspects of the intervention was that the intervention did not last long enough. While the outcomes were promising at 10 weeks follow-up, it is not possible to speculate about the impact of the intervention at longer follow-up periods. It is possible that six sessions were sufficient to introduce participants to a greater understanding about depersonalisation as well as learning strategies to help them manage their depersonalisation symptoms, but was not sufficient to embed change. For example, one third of the intervention participants were either unsure or disagreed that they had more control over their depersonalisation symptoms. Additionally, for those participants where there was a direct link between the depersonalisation and psychotic symptoms, it was clear from the therapist's perspective that six sessions were insufficient and all three participants remarked as such at follow-up interview. In the six-session protocol we were unable to complete the latter phases of intervention in the majority of cases due to the need for slower pace of therapy in the context of psychosis. Interestingly, three participants said that six sessions was the right amount of time for them to focus on depersonalisation but they wished

the sessions could continue to address other issues (for example, response to childhood trauma or low self-esteem, issues that may have been identified as a maintenance factor in the formulation of depersonalisation). Six sessions and other 'low-intensity' CBTp interventions show some promising effects [102]. These data suggest that this protocol of six sessions targeting depersonalisation may also be a useful module that perhaps acts as a precursor to further CBTp interventions or increases access to therapeutic support for some individuals; however, those with more complex needs may understandably benefit from further sessions.

In summary, the findings were mixed regarding the acceptability of the length of intervention. For approximately one third of participants, six sessions was sufficient to address depersonalisation and two thirds of participants no longer met criteria for DPD. However, for some the work uncovered other potential intervention targets and for another third, six sessions was insufficient to make an acceptable impact on their experience of depersonalisation.

2.5.1. Implications for research

The data from this study show that brief CBT for depersonalisation disorder in psychosis is feasible to deliver and highly acceptable to participants. Furthermore, while the study was not powered or designed to detect treatment effects, the reduction in scores in the intervention group, suggests the approach may be beneficial and warrants further investigation. In this context, a pilot trial with sufficient power should be considered.

The finding that those with a link between psychosis and depersonalisation symptoms remained above diagnostic threshold at follow-up suggests that these individuals may represent a subtype of individuals who require more in-depth treatment. Equally, it may be that the depersonalisation experiences are better considered more psychotic in nature, and treatment approaches devised for psychosis may be more appropriate. Further research is needed to examine the phenomenology of depersonalisation and psychosis to determine if there are subgroups that have a differential response to treatment.

2.5.2. Implications for clinical practice

The use of diagnostic algorithm in the context of psychosis and depersonalisation symptoms that stipulates that depersonalisation should not be diagnosed in the context of the presence of other disorders, may limit the identification of distress associated with depersonalisation and miss a useful (and possibly effective) target for intervention. This study shows that

consideration of depersonalisation symptoms is highly acceptable to participants with comorbid psychotic symptoms and there is a suggestion of a positive treatment effect. While further investigation is required before any treatment recommendations are made, the data from this study suggest that clinicians should consider the routine assessment of depersonalisation in those with psychotic symptoms and to provide some psycho-education about these experiences when present. Such routine assessment may also help to clarify the true prevalence of DPD comorbidity in psychosis and facilitate attempts to recruit for a larger scale trial.

2.5.3. Limitations

The lower than expected eligibility rate resulted in not meeting the original recruitment target of 30. The feasibility and acceptability estimates had large confidence intervals creating difficulty in estimating parameters for future trials. The smaller sample size also resulted in the intervention and control groups having different characteristics at baseline. For example, there was a larger proportion of males and White British participants, and slightly higher CDS scores, in the intervention group than in the control group.

Recruitment in most cases came from research registers in the local NHS trust. While all participants were still involved with local mental health teams, it is possible that individuals who agree to participate in research may differ from those found more generally in community mental health teams. In this context, the external generalisability of these data may be compromised. For example, it was interesting that such a high proportion of participants had received previous psychological therapy. It is unlikely that this is representative of the wider population as rates of psychological treatment in the local trust are approximately 10-30%. In this context, the group participating had previous experience of therapy (mostly CBT) and therefore were familiar with some of the concepts introduced, which may have influenced the response to the intervention. For individuals without prior experience of CBT, it is likely that more sessions would be necessary to introduce such concepts.

The suggestion of some effect of the intervention found in these data should be interpreted with extreme caution since the trial was not powered to test for effect of intervention. Furthermore, the follow-up period of 10 weeks is comparatively short and future efforts to test the intervention should include a longer follow-up to ascertain any effect of the intervention in the medium to long-term.

2.5.4. Recommendations for future trial

Considering the data from the current study, there are three specific recommendations for a future trial.

1. In order to facilitate recruitment and build the evidence base for a future trial, it is recommended that routine screening for depersonalisation is conducted. If this were in place, it is likely that referrals and initial contact attempts for potential recruits could be more targeted to those who are likely to meet criteria for DPD.
2. A longer follow-up period, in addition to an immediate assessment at the end of intervention period, is required to determine if there are sustained/mid-range effects of the intervention beyond the very short term. Furthermore, an assessment of the specific strategies used by intervention participants (i.e., emotional, cognitive, behaviour, thought processing) and their relationship to outcome would facilitate the tailoring of the intervention and provide indication of the mechanism of action of the intervention.
3. It may be necessary to extend the intervention beyond six sessions, particularly for those with no prior experience of therapy and those with a link between psychosis and depersonalisation symptoms, since these groups are likely to take longer to respond to treatment.

2.6. Conclusions

This paper provides the first account of delivering a brief CBT intervention for depersonalisation disorder in psychosis. The intervention was feasible to deliver and acceptable to participants. Depersonalisation symptoms were not directly linked to psychotic symptoms in the majority of participants suggesting that DPD can exist as a comorbid condition alongside psychosis. There is some suggestion of a positive effect on scores of depersonalisation, anxiety and depression though further, appropriately powered analyses are required before any definitive statement can be made. Overall the data suggest that a larger-scale trial is warranted and recommendations for this trial are made.

3. Service Evaluation: The feasibility and acceptability of neuropsychological testing on the Fitzmary II ward.

Supervised by:

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Dr Juliana Onwumere

3.1. Abstract

The presence of cognitive deficits in individuals diagnosed with psychotic disorders is well established. Typical deficits include problems with memory, attention, executive functioning and processing speed. These deficits are thought to precede the onset of psychotic disorder, however the evidence for further decline is less clear. Cognitive functioning may be influenced by many factors including psychiatric, medical, psychological and social factors. This report presents the findings of a study of the cognitive functioning of inpatients on the Fitzmary II ward, a national specialist unit for the treatment of refractory psychotic illnesses, often in the context of co-morbid physical health problems. The specific objectives of the study were to establish the: level of cognitive impairment amongst the inpatients on the Fitzmary II ward; feasibility of administering a neuropsychological test battery; acceptability of neuropsychological assessment from perspective of patients; and usefulness of neuropsychological assessment data in the planning of service delivery. Fifteen inpatients were invited to participate in the assessment. There was a 90% acceptance rate. All but three of the participants completed the full assessment, representing a completion rate of 77%. The results indicate significant decline at the time of the assessment compared to estimates of premorbid functioning. Areas of particular difficulty were tests of attention and memory; visuospatial performance was a relative strength. The assessment was acceptable to the inpatients, most of whom said they enjoyed the experience. Professionals expressed some reservations about the usefulness of individual assessments. In summary, the assessment was feasible to deliver and acceptable to participants. Tests indicate significant levels of decline from estimates of premorbid levels, however, professionals reported that individual assessments were of limited clinical use. Recommendations for future assessments included paired assessments and a dedicated professional to provide consultancy to the ward.

3.2. Introduction

Cognitive deficits are noted in most, but not all, individuals diagnosed with a psychotic disorder [103, 104]. When present, research suggests common deficits include problems with memory, attention, executive function and processing speed [105, 104]. Typically those with a diagnosis of schizophrenia perform up to two standard deviations below average, and also below those with a diagnosis of other psychotic disorders such as an affective psychosis [103, 106, 107]. The experience of cognitive difficulties in those with psychotic disorders has been associated with a sense of loss, shame and fear of the future [108], which may in turn lead to further impairments in cognitive performance. Cognitive impairment has also been strongly linked with outcomes such as employment, independent living, quality of life [109, 104], dependency on services (see [105]), and may influence the capacity to learn new skills at the centre of rehabilitation programs and/or psychological therapies [105]. In this context, it is important to understand an individual's level of cognitive functioning in order to be able to tailor treatment plans.

The neuro-degeneration hypothesis of schizophrenia [110] and other psychotic disorders proposes that difficulties in cognitive functioning pre-date the onset of disorder, and that those with the more severe positive or negative symptoms may have had lower premorbid IQs and less 'cognitive reserve' to deal with the onset and impact of the disorder [111]. Various longitudinal and cohort studies provide relatively robust evidence of premorbid cognitive difficulties and potential further decline during the onset or early stages of the disorder [111, 112, 105] however, there is inconsistent evidence regarding the long-term progression of cognitive difficulties in schizophrenia [113, 114, 105]. Studies addressing the question of progressive decline have been limited by methodological problems, such as cross sectional designs, small sample sizes and cohort effects. However, recent longitudinal studies provide some evidence for the existence of cognitive decline in psychotic disorders. For example, in a longitudinal study over 33 years of 43 individuals diagnosed with schizophrenia and matched controls [114], deficits were identified in those with schizophrenia in verbal intelligence, non-verbal abstract reasoning and problem solving skills at baseline. There was no further decline in verbal intelligence over the 33 year period, however, there was evidence of further decline in non-verbal reasoning and problem-solving abilities, beyond that which was exhibited in the matched healthy controls [114]. Additionally, a 13 year prospective study of adolescents diagnosed with schizophrenia compared to those diagnosed with ADHD and healthy controls, suggests that beyond the initial deficits noted at onset, schizophrenia is associated with further decline in verbal memory and a lack of improvement (or 'arrest) in attention and processing speed.

The extent to which these deficits represent true neuro-degeneration is unclear due to the number of other factors typically present in psychotic disorders which may influence, interact with or be the result of cognitive impairment. For example, if the positive psychotic symptoms were successfully treated, would the cognitive deficits remain? In addition to positive symptoms of psychosis, other psychological processes such as depression, anxiety or learned helplessness may influence performance on cognitive assessments. Further, it is well established that individuals with psychotic disorders have a high prevalence of physical illnesses such as diabetes and high blood pressure and are at risk of premature death from such disorders [115]. Furthermore, the social context for individuals with psychotic disorders may exert an influence. For example, it is well known that individuals with psychotic disorders are amongst the most socially isolated individuals in our communities [116] and social isolation can negatively affect cognitive function [117]. In this context, understanding the cognitive profile of individuals with psychotic disorders is extremely complex.

The Fitzmary II ward is a National Specialist inpatient unit that provides specialist treatment and assessment of individuals who may present with one or many of the complexities discussed above. Those admitted to the Fitzmary II ward may have persistent psychotic symptoms, poor response or tolerance to common pharmacological treatments, co-morbid medical conditions that complicate treatment and/or mild learning disabilities. The multi-disciplinary staff on the Fitzmary II ward provide a range of interventions including innovative pharmacological, psychological, occupational therapies and nursing treatments. Understanding the individual cognitive profile of patients might facilitate more highly specialised individual treatment plans which take into consideration the individual's cognitive strengths and weaknesses, facilitating treatment success and independence. For example, an individual may have particular strengths in visual processing and memory. Tailoring psychological interventions using visual aids and tools may improve the individuals' response to treatment. Further, an understanding of the overall cognitive profile of the patients on the ward may facilitate service planning, for example providing evidence for the need of a specialist memory clinic or staff training to facilitate systems and processes which build independence, confidence and self-efficacy in the context of cognitive difficulties.

In this context, the aim of the project was to understand the level of cognitive functioning difficulties on a long-stay national specialist ward for psychosis (the Fitzmary II ward). The specific objectives were to establish the

- level of cognitive impairment amongst the inpatients on the Fitzmary II ward;
- feasibility of administering a neuropsychological test battery;
- acceptability of neuropsychological testing from perspective of patients;

- usefulness of neuropsychological assessment data in the planning of service delivery.

3.3. Method

3.3.1. Setting

The Fitzmary II ward is a National Psychosis Unit specialising in persistent and treatment resistant psychotic disorders. Many of the inpatients have comorbid physical health concerns which add complexity to the treatment of their mental health problem. The ward has 23 beds, with an average stay between 6-9 months. The ward has a routine assessment covering a detailed personal history, medical and psychiatric history and current functioning and symptoms, however, staff do not routinely conduct neuropsychological assessments.

Approvals for this study were obtained from the Psychosis Clinical Academic Group (CAG) – see Appendices G and H..

3.3.2. Participants

Participants were inpatients on the Fitzmary II Ward. All inpatients, other than those for whom testing would not have been feasible (for example, hearing impairment or being acutely unwell), were invited to participate.

3.3.3. Procedure and data collection

Testing was conducted on five days between January and May 2014. Two or three assessments were completed on each visit to the ward. Inpatients were approached by their lead psychologist and invited to participate in the assessment. Inpatients were told that participation was not compulsory and that there would be no impact on their treatment if they did not wish to participate. The assessments were conducted in the psychology office or meeting room on the ward at a time that was convenient to the participant. Those who chose to participate were told that the assessment would cover their strengths and weaknesses in memory, concentration and attention and this information would be used to tailor their treatment. The participant was informed that they could take breaks as required.

After the assessment, a report was compiled and sent to the psychologist in charge of the participant's care for review. Once the report was finalised, the psychologist in charge of the participant's care reported the findings to the multi-disciplinary team and to the participant themselves.

Three neuropsychological measures were administered to assess the level of cognitive impairment: the Repeatable Battery for Assessment of Neuropsychological Status (RBANS), Test of Premorbid Functioning (TOPF) and Trail Making Test.

The Repeatable Battery for Assessment of Neuropsychological Status (RBANS) [118]

The RBANS is a brief neurocognitive battery measuring immediate and delayed memory, attention, language, and visuospatial skills. The RBANS was specifically developed for use in inpatient wards as it is comparatively quick to administer (average administration time is 25 minutes). It was originally designed to assess dementia, but has since been used to assess cognitive functioning in many disorders.

The reliability and validity of the RBANS has been tested in community and inpatient samples of individuals diagnosed with schizophrenia and other psychotic disorders and shown to be a reliable and valid measure of cognitive impairment in such groups and comparable to fuller batteries [119, 120, 109, 121]. Studies using the RBANS to test current cognitive function in individuals diagnosed with schizophrenia suggest that this patient group tend to score around two standard deviations below the mean, i.e., a Total Scale of Score of approximately 70 [109, 106, 107], which is significantly lower than those diagnosed with Bipolar Affective Disorder and control groups, and possibly associated with the severity of positive and negative symptoms [107].

The RBANS generates a Total Scale Score and five index scores: Immediate memory; Visuospatial/constructional; Language; Attention; Delayed memory. Each of the index scores are described briefly below.

Immediate memory index

This index is a measure of initial encoding and learning of complex and simple verbal information. Low scores on this index indicate difficulties with verbal learning. There are two subtests: Story Memory and List Leaning. For *Story Memory*, participants are read a short passage encompassing 12 items regarding a fire. Participants are asked to repeat as much detail as they can remember and using the original words where possible. After the initial attempt to repeat the story, the story is read a second time and participants are invited to repeat it again, this is to allow for learning. The maximum score for this task is 24. For the *List Learning* subtask, participants are read a list of 10 unrelated words, and asked to repeat as many as they can remember. The list is repeated 4 times allowing for learning. The total score is therefore 40.

Visuospatial/constructional index

This index is a measure of basic visuospatial perception and the ability to copy a design from a model. Low scores on this index indicate difficulties with processing and using visuospatial information. There are two subtests*: Figure Copy* and *Line Orientation*. The *Figure Copy* involves a direct copy of a complex geometric figure. There are 10 components of the figure. Participants are scored for accuracy and placement, yielding a total score for this subtask of 20. In the *Line Orientation* task, participants are shown 10 arrays of 13 lines. Each line originates from a common central point and varies through 180 degrees. For each item, participants are shown two target lines and asked to identify which lines they correspond to within the array. The total score for this task is 20 (10 items with two lines to match).

Attention index

This index is a measure of auditory registration, visual scanning and processing speed. Low scores indicate difficulties with aspects of attention and speed of information processing. There are two subtests: *Digit Span* and *Coding*. On *Digit Span*, participants are read a list of numbers (from two to nine digits) and asked to verbally repeat the numbers back in the same order. On the *Coding* task, participants are provided a 'key' at the top of the page which matches simple symbols to digits. Below the key, participants are given a grid with the symbols and asked to enter the corresponding digit; participants have 90 seconds to complete as many items as possible.

Language index

The language index is a measure of expressive language function. There are two subtests: *Semantic Fluency* and *Picture Naming*. The *Semantic Fluency* test requires participants to name as many fruits and vegetables as possible within a 60 second period. *Picture Naming* requires participants to recognise and name drawings of common objects such as a sailing boat.

Delayed Memory Index

This index is a measure of delayed recall and recognition. The tests on this index require participants to recall and recognise material from the *Story Memory* and *List Learning* subtasks of the Immediate Memory Index and the *Figure Copy* subtask from the Visuospatial index. Low scores indicate difficulties with recognition and retrieval of information from long term memory stores.

Total Scale Index

The raw scores on subtests are scaled together to create index scores. The *Total Scale Index* is a composite of all the indexes within the battery. The Total Scale Index score is a good indicator of the general cognitive functioning of the participant. Low scores on this index strongly suggest general cognitive impairment.

The Test of Premorbid Functioning (TOPF) [122]

The TOPF is reading test, designed to estimate an individual's level of intellectual functioning before the onset of illness or injury. It is a list of 70 words that the participant is required to read out loud. The test is discontinued after five consecutive mispronunciations. Total scores can be used to estimate premorbid ability compared to other scales such as FSIQ generated from the Weschler Adult Intelligence Scale.

Trail Making Test (TMT) [123]

The TMT is a test of executive functioning. It consists of two timed trials. The first trial involves the participant linking numbers, this is a test of processing speed. The second trial involves linking numbers and letters in order, but switching between the two, for example, 1, A, 2, B, 3, C, 4, D... . This second trial assesses visual attention and task shifting. The score for each trial is the amount of time taken to complete the task. Scores on the TMT for individuals diagnosed with schizophrenia show associations with psychotic symptomatology, and with other cognitive factors such as working memory, psychomotor speed and executive function [124].

3.3.4. Process measures of feasibility and acceptability

To assess the feasibility and acceptability of such assessments, process data were collected including:

- the number of assessment refusals
- the time and number of sessions taken to complete the assessment
- acceptability of the assessment for service users was measured by a short questionnaire that was completed at the end of the assessment (see Appendix C)
- acceptability and usefulness of assessment for clinicians via a short questionnaire (see Appendix D)
- time taken to score assessment and draft the reports

Demographics (age, ethnicity, gender, education, marital status) and clinical history (e.g., medical problems, mental health diagnosis, length of illness, time on the ward, medication) information was collected from clinical records.

3.4. Results

3.4.1. Completion rates

Overall, 15 patients of the Fitzmary II ward were invited to complete the assessment. Of these 15 patients, all but two patients accepted the invitation, resulting in a 90% acceptance rate. The reasons for not approaching other patients included: current risk issues, communication difficulties and being too symptomatic to consent and/or engage in the assessment. The two people who declined the invitation to participate said that they were uncomfortable with the idea of an assessment. The demographics of the thirteen participants are shown in Table 1.

All but three of the participants completed the full assessment battery (i.e., the TOPF, RBANS and TMT), which represents a completion rate of 77%. The reasons for non-completion were varied. Of the three who did not complete the full assessment battery, one participant completed everything except the TMT trial B – saying she simply did not want to continue, another participant became distressed by the Coding task in the RBANs and declined to continue with the assessment saying '*I wish to quit. You know too much about me already. You can get what you need from that [coding sample]*', and the remaining participant repeatedly appeared to fall asleep and said *'I don't really want to do this – can I stop?.'* Most participants completed the assessment without taking breaks. One participant left the testing session on three occasions, but returned each time and eventually completed the assessment battery. The remaining nine participants who completed the assessment did not take any breaks.

3.4.2. Time taken to complete the assessment

The average length of time taken to complete the assessment (excluding those who did not complete) was 34 minutes, ranging from 29 to 42 minutes. The average elapsed time for those who completed the assessment, including breaks/walkouts was 39 minutes ranging from 29 to 63 minutes. For the three participants who did not complete the assessment, the elapsed time taken before leaving the assessment was 23, 35 and 22 minutes respectively.

Table 1: Demographics of the sample

Variable	Categories	N=13
Age (years; mean (range))		40 (24-58)
Age at first presentation to mental health services (mean (range))		21 (9-29)
Length of admission (months; mean (range)).		4 (0.25 – 14)
Marital status (% single)		80
Highest education level n(%)	No qualification	3
	GSCE	4
	A-levels	3
	Degree	2
	Missing/unknown	1
Diagnosis	Schizophrenia	5
	Schizoaffective Disorder	4
	Treatment Resistant Schizophrenia	4
Comorbid physical health problems*	Diabetes	2
	Hydrocephalus	1
	Hepatitis C	1
	Cancer	1
	Neurofibromatosis	1
	Neuroleptic Malignant Syndrome	1
	Pulmonary embolism	1
	Asthma	1
	None listed	7
Learning difficulties		1
Dyslexia		2

* Some participants had more than one health problem

Scoring the full assessment took approximately 15 minutes. Writing and drafting the report took approximately two hours. Therefore, the entire time taken to complete the assessment including administration of the tests, scoring and report writing was just under three hours per participant.

3.4.3. Inpatient views on acceptability of the assessment

The ten participants who completed the full assessment were asked for their opinion on the assessment. Participants were asked to rate their experience of the assessment in terms of enjoyment, satisfaction, stress, and difficulty. Their responses are shown in Table 2 below. All 10 participants who completed the assessment said they would be happy to complete a similar assessment again.

Table 2: Acceptability of assessment

	Mean (n=10)	Mode (n=10)	Range (n=10)
Enjoyable	4.1	5	3-5
Satisfied	4.2	5	3-5
Stressful	1.9	1	1-4
Difficult	2.4	1	1-4

Note: 5= very enjoyable, very satisfied, very stressful and very difficult

Good things about the process

Participants were asked for their views on the good things about the assessment. Seven participants provided a response to this question, two of whom said 'all of it'. One participant said that it '*killed boredom on the ward*'. Another enjoyed specific aspects and content of the assessment saying *'alphabet, firefighters, drawings, fruit'*. Two participants enjoyed performing well and learning new skills. One participant who was about to be discharged from the ward hoped that it would help him get a flat.

Aspects of the assessment that could be improved

Participants were asked for their view on one thing that could have been improved about the assessment. Of the nine participants who provided a response to this question, six said they would not change any aspect of the process. One participant wished he could change aspects of his performance and current memory,

> *"I just wish I could remember the alphabet and months again."*

One participant queried whether the particular tests used in the assessment battery would adequately capture his perception of his current cognitive difficulties,

> *"After having ECT I find that I have a degree of difficulty remembering things from time to time and from day to day. If I go shopping I will tend to forget things that previously I would have remembered. If the tests have measured that, all well and good, but by asking me that and about it might capture the truth more effectively."*

3.4.4. Professional views on the acceptability of the assessment

The three psychologists on the ward were asked for their views on the helpfulness of the information gleaned from the assessment (rating out of 10 where 10 was extremely helpful and 1 was extremely unhelpful). One psychologist said that the *'Information has been used to inform the care plan and to think about the interventions we are delivering'* and rated the helpfulness as 8/10. The remaining two psychologists rated the helpfulness as 5/10 or

'neutral' stating concerns about the generalisability of the results. One psychologist said that as the medication and presentation of the patients on the ward was constantly changing, it was difficult to ascertain how relevant the findings were at any particular time. Another psychologist said that while it was useful to have recommendations for staff and evidence of cognitive impairments, the fact that the participants were acutely unwell at the time of testing, limited the generalisability of the results. There was also some concern expressed regarding how this information would be used by clinicians in the future – i.e., reading the results as 'fact' without reference to the context of testing and the impact of illness at the point of testing.

In terms of the test battery, the psychologists were pleased with the overview of the current level of functioning obtained by the RBANS and other measures. There was an acknowledgement of the suitability of the brief nature of the battery for this particular patient group. One psychologist suggested that other aspects would be useful such as gaining more information of types of attention deficits (i.e. selective, divided, impulsivity) and having a greater focus on tests of frontal lobe functioning.

In terms of recommendations for improvement, three things were suggested:

- a dedicated person on the ward to complete them;
- assessments at admission and discharge rather than one point in time;
- results being translated into real world examples for the report.

The psychologists were asked if they would recommend routine neuropsychological testing on the ward and their responses were mixed. One psychologist said that they were unsure about the usefulness of testing on the ward when participants were acutely unwell. Another responded that they would 'definitely' recommend it. The remaining psychologist said that they would not recommend it due to the time taken to complete the assessment.

3.4.5. Cognitive profile of participants.

The RBANs full scale index for the participants is presented in Table 3. Three participants scored between 80 and 90 which would be considered 'low average range'; three between 70 and 80 i.e., the 'borderline' range; and the remaining five participants score between 42 and 70 which is considered the 'extremely low' range. Table 4 provides a summary of the groups' functioning.

Table 3: Difference between Premorbid IQ and RBANs total scale by individual

	TOPF estimate of premorbid IQ	RBANS total scale index	Difference
1	95	69	-26
2	92	73	-19
3	75	42	-33
4	105	87	-18
5	78	53***	-25
6	-	51***	
7	-	56***	
8	102	86	-16
9	114	79	-35
10	99	72***	-27
11	94	45	-49
12	93		
13	95		

*** overall scale score wasn't reliable due to variations between indices (i.e., differences greater than 23) in most cases the visuo-spatial index was significantly higher than other indices

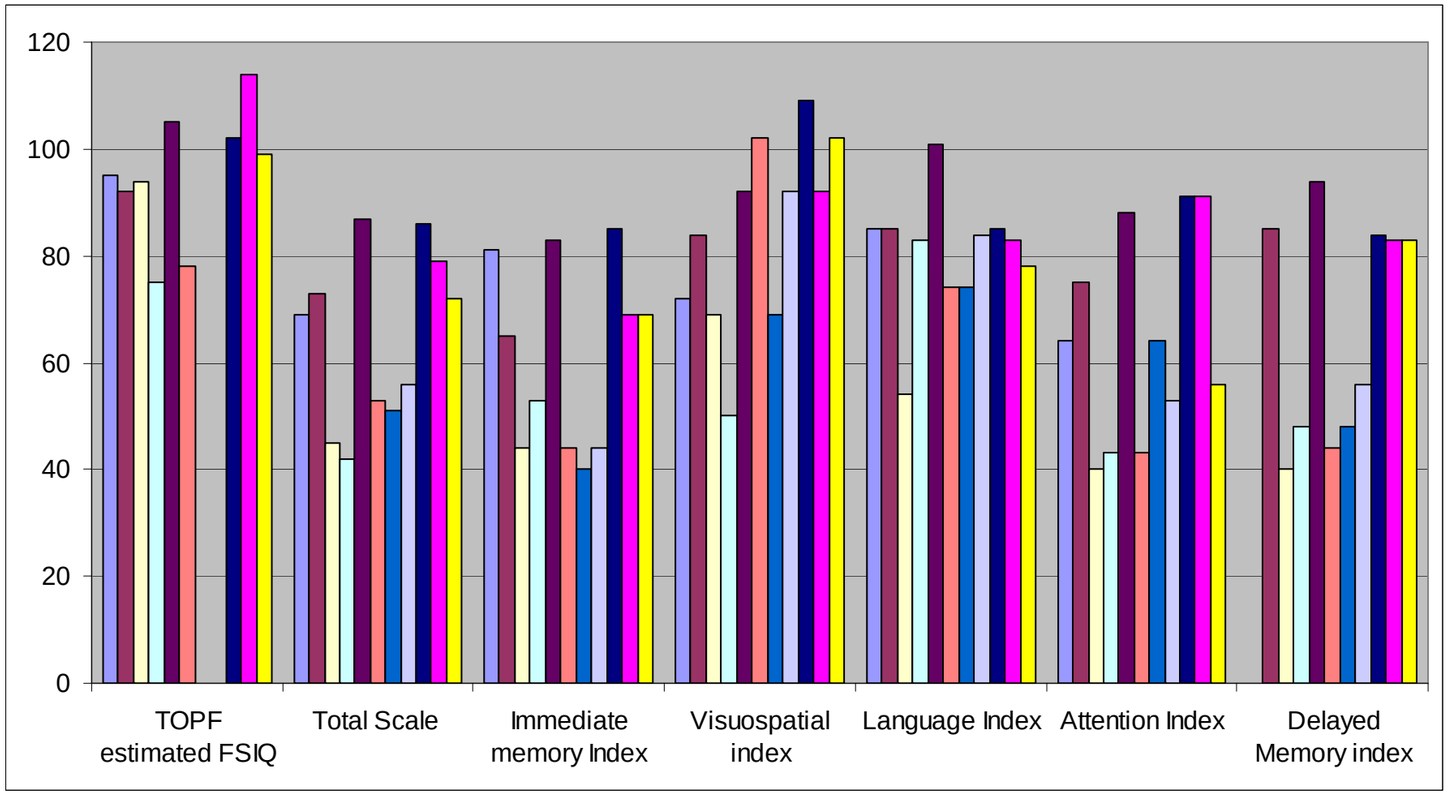
Table 3: Overall summary of cognitive functioning

	N	Average	Descriptor	SD	Range
Premorbid IQ	11	95	Average	11.1	75-114
RBANS IQ estimate	12	66	Extremely Low	16.4	42-87
Immediate Memory index	13	62	Extremely low	17.5	40-85
Delayed Memory Index	10	66	Extremely Low	20.9	40-94
Visuo-spatial	13	84	Low Average	19	50-109
Language	13	78	Borderline	12	54-101
Attention	11	64	Extremely Low	19.5	40-91
TMT – A	11	48.2		15.9	22-78
TMT – B	8	118.5		47.1	76-214
TMT – Ratio	-	2.45	unimpaired		

*RBANS IQ estimate was prorated for individuals missing one index score.

In general, participants' performance on the RBANs indicated a decline in overall functioning from the premorbid estimates – see Figure 1. Areas of particular difficulty were the Immediate Memory Index and Attention Index. Performance on Visuospatial Index and in many cases the Language index, were areas of comparative strength for many participants. In terms of the TMT test, only three of the eight who completed the two trials had a ratio greater than 2.5 which is indicative of impairment.

Figure 1: Performance on RBANs indices



3.5. Discussion

The primary aim of this project was to assess the level of cognitive impairment on the Fitzmary II ward. Thirteen participants completed at least part of the assessment battery. The estimate of the premorbid functioning for the overall sample using the TOPF was within average range, however the estimate of current functioning for the overall sample using the RBANs was significantly below this in the 'extremely low' range. The level of current functioning assessed by the RBANS is consistent with previous research in similar patient groups [109, 125, 106]. However, the discrepancy between the premorbid and current estimates of functioning is larger than findings of previous research [106] which is perhaps indicative of the complexity of the patients on the Fitzmary II ward. In line with previous research [109, 126], attention and working memory were the areas of most difficulty for participants, while the visuospatial and language indices were the areas of least difficulty.

The second aim of the project was to determine the feasibility and acceptability of neuropsychological testing on the Fitzmary II ward. Results indicate that the battery of tests used in this project were feasible to administer and acceptable to participants. The administration of the tests was successful; the brief nature of the RBANs and the short individual tests were useful to maintain the participants' interest and motivation. There were very few refusals of invitation to participate and very few people did not complete the full assessment. Qualitative responses from service user participants were positive (the most frequent responses were 5/5 for enjoyable and 1/5 for stressful). Participants appeared to enjoy the novelty of the assessment and enjoyed being challenged in this manner. Some reported that they enjoyed learning new skills. The responses from the psychology team were more circumspect. In some instances, reports were used to inform other members of the clinical team of current levels of functioning of participants and influenced treatment plans. However, some of the psychologists expressed concern regarding the usefulness of the testing in the context of rapidly changing clinical presentation of participants, particularly while undergoing various intensive treatments on the ward.

In this context, two questions emerge from these data. Firstly, to what extent is the individual snapshot generalisable beyond the context of acute hospitalisations, i.e., would the deficits identified in the assessments be relevant once individuals are stabilised sufficiently to be discharged? Secondly, are individual profiles provided by the assessment useful considering the amount of time involved in the administration and scoring?

3.5.1. Considering the stability of cognitive difficulties

In the past, schizophrenia has been considered a neuro-degenerative condition similar to dementia (dementia praecox). If this were the case, assessment at any point during an individuals' experience of the illness would provide an indication of functioning from which the person would likely deteriorate further. However, few methodologically rigorous longitudinal studies have been completed and those that have suggest some decline, but these findings need replication. More recently, cognitive interventions such as Cognitive Remediation Therapy show promising effects [126] which suggests that rather than an inevitable decline, some fluctuations in a person's cognitive performance are possible. In this context, neuropsychological assessments are likely to provide a snapshot of functioning, but need to be interpreted with caution and repeated at appropriate intervals to determine evidence for long-term decline. Studies using the RBANs for individuals diagnosed with schizophrenia (Gold et al, 1999) suggest good test-retest reliability, however, these findings covered a 12 week period and were amongst mostly outpatients. Gold and colleagues (1999) examined the relationship of cognitive performance to symptoms and found that the profiles were relatively independent of symptoms, however these analyses were conducted during a period of symptomatic stability. In this context, little is known about the longer term reliability of the findings from the RBANs for individuals with psychotic diagnoses, and particularly amongst those in the more acute phases of the illness.

The assessments in this study were conducted after an average of four months on the Fitzmary II ward and participants were subject to changing care plans involving pharmacological and psychological interventions. The report provided for each participant was therefore a snapshot of how they were presenting on a given day. In the absence of convincing long-term evidence of the stability of cognitive performance assessed by the RBANs in such contexts, we are unable to determine the long-term relevance of the findings. On the one hand, as the RBANs tests are not particularly difficult as it was originally developed to assess dementia amongst inpatients. Considering the consistently poor performance of the sample on these relatively simple tasks, we may conclude that this provides evidence of significant impairment at the time of assessment, however, without re-testing the sample we cannot conclude that we have evidence of longer term decline. It is likely that following optimisation of pharmacological intervention and/or response to psychological therapy, their performance on this assessment would improve. In this context, the single snapshot provided by this assessment is useful as a baseline, but further testing, perhaps at discharge, would be required to establish the stability of the findings and provide recommendations for the individual beyond their presentation at an acute stage of illness.

3.5.2. Similarities in cognitive profile

The overall findings regarding the cognitive profile of residents during the testing period was largely consistent with previous research and commonly reported deficits in those diagnosed with a psychotic disorder. Most participants performed lower than would be expected based on estimates of premorbid functioning on tests of attention and memory and many had a comparative strength in visuospatial processing. Many of the recommendations for tailoring of treatment for individuals were common across the reports and included the use of visual prompts in therapy sessions, memory aids such as the use of written reminders, calendars and verbal repetition of information.

3.5.3. Logistics of neuropsychological assessment

The acceptance and completion rates for the assessment battery were very high, suggesting that routine testing would be feasible and acceptable to inpatients. However, the estimate of time taken for the testing and generation of the reports (three hours) did not include the time taken by the psychologists in the team in setting up the assessments, feeding back the reports to the MDT and the participants themselves. In this context, the time taken overall to implement routine neuropsychological testing would be substantially longer than three hours. In addition, considering the level of complexity and rapid changes in the clinical presentation of the ward, one-off neuropsychological assessments of questionable long-term benefit (see above) are unlikely to be prioritised over pressing clinical issues. For example, on one day when testing was due to take place, there was a significant risk issue for one of the inpatients which required the use of the office that was booked for testing. The neuropsychological testing was rightly abandoned to enable the clinical risk issue to be appropriately addressed. Further, the number of assessments completed was likely higher than what might be achieved in routine practice as there was a person who sole role was to complete the assessments. Furthermore, neuropsychological assessment requires a quiet room with limited distractions – something that was difficult to find on a busy ward like the Fitzmary II.

3.5.4. Limitations

There a several limitations to these data. Firstly, the acceptability data from the perspective of service user participants was limited to their views on the acceptability of the assessment. We did not gather data on the number of service users whose psychologist discussed their report with them, and amongst those, what the experience was like for service users and whether the report was helpful for them. These data would be important to gauge the relevance and impact

of the report for service users. Secondly, we did not collect data from other professionals on the ward (e.g., nurses, psychiatrists) regarding the usefulness of the report in their work. Thirdly, we were not able to re-test individuals due to time limitations. These data would be particularly important to determine the stability of the difficulties uncovered in the assessment and to potentially increase engagement in the findings from the professionals. Fourthly, a larger sample on the ward would provide more information regarding how typical the findings are. Finally, we did not measure psychotic, mood or anxiety symptoms at the time of the assessment, nor the impact of any co-morbid physical health problems. In this context, we are unable to determine how the individual's performance was influenced by such co-morbidity, and therefore the findings regarding the cognitive profile of the patients must be interpreted with caution.

3.5.5. Recommendations

- At this stage, it is recommended not to continue with testing on the ward in the manner trialled in this study, particularly considering the ambiguity regarding the usefulness of a single assessment, the amount of time taken and the similarity in recommendations between reports.

- However, benefits from neuropsychological testing (participant enjoyment; individualised plans; evidence for the effectiveness of treatment) could be harnessed if a different approach was taken to the administration. To enhance the value of neuropsychological assessment on the ward, there are four main recommendations:
    1. Conducting paired/repeat assessments: Adding neuropsychological assessments to the battery of assessments conducted on admission to the ward and repeating this assessment at discharge from the ward (at a minimum). Such paired assessments could:
        - be used as evidence of the effectiveness of the intervention
        - provide useful information regarding the profile of individual patients on admission
        - provide evidence for stability of cognitive difficulties over the course of treatment
    2. Conducting ecologically valid assessments: Assessments relevant to aspects of treatment and life on the ward would enhance the relevance of the assessment findings for clinicians.

3. Assessing the acceptability and impact of the report findings for service users: Understanding how service users understood and appraised the findings from the reports would be useful. For example, discovering one has cognitive deficits may be additionally stigmatising for some individuals leading to a sense of hopelessness. Others may find the strategies suggested in reports useful and empowering.
4. Having a dedicated professional to conduct assessments: A part-time neuropsychologist on the ward could:
    - Ensure the accurate interpretation and application of findings from assessment, including training staff in main concepts and overseeing the application of recommendations
    - Gather data on psychological and physical symptom at the time of assessment to provide a nuanced account of the individual's performance.
    - Prioritise neuropsychological assessment on the ward
    - Be known by the patients on the ward, decreasing the time involved for lead clinicians (i.e., be able to directly approach patients, report back to MDT, facilitate feedback to patients with lead clinician)
    - Assist in service planning by providing expertise in the impact of service plans on the cognitive profile of the inpatients.

3.5.6. Dissemination

The individual assessment reports were given to the lead psychologist of the patient who then discussed it with the patient and separately with the rest of the ward team during ward rounds. This report was also provided to the clinicians on the ward.

3.5.7. Leadership

The psychology team on the ward were invested in the project and were integral in the delivery of the project (i.e., through organising and helping to recruit participants). The psychology team on the ward used the reports to influence care packages and to inform other staff members regarding the cognitive functioning of the inpatients on the ward. However, overall the findings of this report suggest that routine testing in the manner applied in this project is of limited validity for the psychology team. In this context, this report recommends against routine neuropsychological testing unless changes are made (see recommendations). Nevertheless, the

findings of this report may influence service planning and provision on the ward, particularly if the recommendations for delivery of neuropsychological testing are implemented.

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5. List of combined Appendices

Appendix A: Systematic Review - Quality tool

Section 1: External validity

	1. Are the study design and sampling method appropriate for the research question?	2. Sampling method	3. Sampling frame (list for study recruitment)	4. Sampling for different subgroups/ severity of psychosis	5. Assessment /adjustment for sampling bias	6. How study size decided.	7. Estimate bias - response rate adequate	8. Numbers enrolled, analysed refused, missing at follow-up etc reported
0	NO	Not reported	Not reported	Mixed diagnostic group, psychosis not presented separately	Not reported	Not reported	Not reported	Not reported
1	Unsure	Convenience/ self-selected/ other non-random	Specific clinics/ research registers/ admissions	Psychosis sampled as one group	Discussed in write-up	Convenience/other method	< 70%*	Numbers included in sample reported
2	Yes	Random	General population of people with psychotic disorder in area	Range of stage of illnesses/ severity/ symptoms sampled	Adjusted for in analysis/ assessed in analysis	Power calculation	> 70%*	Numbers clearly reported at each stage of study eg consort

Section 2: Internal validity

	9. Source of psychosis diagnosis	10. Source of DP data	11. Reliability of estimate of DP	12. Severity of DP	13. Frequency of DPD	14. Frequency of DP symptoms
0	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
1	Medical records/ database/ questionnaire	Standardised measure but not standardised use or reporting	Questionnaire/ self-report/ interview with no estimate of inter-rater reliability	Mean scores and SD reported for DP	Not applicable – i.e., DES score only OR reported with no estimate of error	Number experiencing at least one symptom of DP
2	clinical interview	Standardised measure and standardised usage/ reporting	Interview	Mean scores, range/SD, estimate 95% CI reported	Reported with estimate of error	Reported with estimate of error

Notes:

* Loney published rate of 'acceptable'

- Items 2,3, 5, 7, 8 and 9-14 are adapted from Shamliyan and colleagues' tool [35]
- Item 6 was from the STROBE [33]tool
- Items 1 and 4 were author additions

Appendix B: Protocol Manuscript

(Submitted to Pilot and Feasibility Studies. Status: revisions submitted).

A brief CBT intervention for depersonalisation/derealisation in psychosis: Study protocol for a feasibility randomised controlled trial

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Abstract
Background
Depersonalisation is the experience of being detached or disconnected from one's experience. Studies suggest that clinically significant levels of depersonalisation are common in individuals who have psychotic symptoms and are associated with increased impairment. However, to date, there have been no studies that have investigated an intervention designed to target clinically significant depersonalisation in such patient groups. This study aims to determine the feasibility and acceptability of a brief intervention targeting clinically significant depersonalisation in those who also have current psychotic symptoms.
Methods/Design
The feasibility of delivering six sessions of Cognitive Behavioural Therapy for depersonalisation in psychosis patients will be evaluated using a single blinded randomised controlled trial with a treatment as usual control condition. Participants will be assessed at baseline and then randomised to either the treatment or control arm. Participants randomised to the treatment arm will be offered six sessions of individual Cognitive Behavioural Therapy delivered over a maximum of 10 weeks. Therapy will focus on an individualised shared formulation of depersonalisation experiences, and behavioural, cognitive, emotional regulation and thinking process strategies to decrease distress associated with depersonalisation. Participants will be assessed again at a 10 week (post randomisation) follow-up assessment. The primary outcomes of interest will be those assessing the feasibility and acceptability of the intervention including: rates of referral, eligibility, and acceptance to participate; attendance at therapy sessions and completion of homework tasks; satisfaction with the intervention; maintenance of blinding; and therapist competence. Secondary outcomes will be data on clinical outcome measures of depersonalisation, positive symptoms of psychosis, anxiety, depression and post-traumatic stress.
Discussion

This study will determine the feasibility of delivering six sessions of Cognitive Behavioural Therapy for individuals with current psychotic symptoms who also experience clinically significant levels of depersonalisation. The results will provide information to inform a larger randomized trial to assess intervention efficacy.

Trial registration.
ClinicalTrials.gov: NCT02427542.

Keywords: psychosis, depersonalisation, derealisation, cognitive behaviour therapy, intervention, feasibility trial

Background

Psychosis is a general term covering a range of psychiatric diagnoses such as Schizophrenia, Schizoaffective disorder and Delusional Disorder[1]. Psychotic symptoms include delusions, hallucinations, negative symptoms such as affective flattening, and cognitive disturbances. Recent estimates suggest that four in every 1000 people in the UK have a diagnosis of a psychotic condition [2]. Alongside medication, current treatment guidelines [1] recommend psychological intervention using either Cognitive Behavioural Therapy for psychosis (CBTp) and/or Family Interventions. Recent meta-analyses have shown some efficacy for CBTp[3] , however prominent theorists and clinicians have called for further treatment innovations and understanding of the most efficacious treatment components [4-6]. One such approach is the 'the causal-interventionalist' approach [4], whereby a single hypothesised maintenance factor is targeted with CBT in order to reduce both this problem (e.g. worry , insomnia) with the secondary gain of improving psychotic, and other emotional, symptoms. Dissociation, and depersonalisation in particular, may be one such maintenance factor.

Defining dissociation and depersonalisation

Dissociation is defined as 'a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behaviour' [7]. As such it is an umbrella term that incorporates a spectrum of phenomena ranging from normal, everyday experiences such as absorption and divided attention, to more distressing and functionally impairing experiences of clinical significance such as the psychiatric condition of Depersonalisation Disorder (DPD).

Historically, all types of dissociative phenomena have been viewed as part of a continuum, from 'normative' experiences to more pathological experiences. However, more recent theoretical reviews have suggested that dissociation may be best considered as comprising of two categories of phenomena: detachment and compartmentalisation [8], although these are not necessarily mutually exclusive. 'Detachment' concerns a person's sense of separation from experience, including from their sense of self (i.e., depersonalisation) or from the external world (i.e., derealisation) [8, 9]. 'Compartmentalisation' on the other hand, is defined as a disruption in normally integrated functions that is not accessible to conscious control and includes Dissociative Amnesia and Somatoform Dissociation [8]. This study is primarily interested in the 'detachment' experiences of depersonalisation and derealisation (referred to as depersonalisation henceforth) in those with a diagnosis of a psychotic disorder.

Prevalence estimates of depersonalisation

Depersonalisation symptoms are common in non-clinical and clinical populations, particularly amongst those with anxiety disorders where it is amongst the diagnostic criteria of panic disorder and post-traumatic stress disorder (PTSD) [10]. Epidemiological studies suggest lifetime prevalence rates of transient depersonalisation symptoms in the general population of between 26 and 74% [11].Community surveys examining the prevalence of Depersonalisation Disorder (DPD) specifically, using standardised diagnostic criteria, suggest one month prevalence rates of between 1.2 and 2.4%, and rates as high as 82.6% have been reported comorbid with other psychiatric disorders [11].

Dissociation and psychosis – common factors or pathway?

There has been increasing interest in the presence of dissociative experiences in psychotic disorders, in part due to common aetiological factors of trauma and anxiety, and the potential for dissociation to play a mediating role in psychosis [12-14]. Dissociation has long been considered a psychological defence mechanism to protect the individual against intolerable events such as trauma (see [14]). It is also now well established that rates of trauma are high in psychosis [15]. Recent population based studies in both the UK and the USA show high rates of lifetime experiences of sexual and physical abuse in those diagnosed with a psychotic disorder [16, 17]. Further, in a critical review of studies examining trauma in those with severe mental illnesses, rates of trauma exposure were between 49-100% [18]. Considering the well-established link between trauma and dissociation, and the high rates of trauma experiences in psychosis, it is therefore not surprising that dissociation is also common in psychosis [19]. Additionally, the cognitive model of DPD [20] has emphasised the role of anxiety and cognitive processes common to anxiety disorders, in the development and maintenance of DPD. Experimental research provides support for the influence of cognitive processes of attention, catastrophic appraisals and attribution biases in DPD [21]. Further, a longitudinal study of over 3000 participants in the UK, found that childhood anxiety was a significant predictor of adult depersonalisation experiences [22]. Likewise, cognitive models of psychosis [23] emphasise the role of emotional processes, particularly anxiety, in the onset and maintenance cycle of psychotic symptoms [5, 24].

Considering the commonalities in maintenance processes of dissociation and psychosis, it is understandable that dissociation is also common in psychosis and indeed, some authors have speculated that some psychotic symptoms, in particular auditory hallucinations, may actually be better understood as dissociative in nature [14, 12].

Rates of Depersonalisation in psychosis

Eleven studies were identified by a review of research investigating dissociation in psychosis [25]. The reviewers concluded that there was 'solid empirical evidence' that individuals with a diagnosis of schizophrenia have more frequent, and severe, dissociative experiences than non-clinical populations, but less frequent and severe than those diagnosed with Borderline Personality Disorder, PTSD, or Dissociative Identity Disorder. Furthermore, they found a consistent association between experiences of dissociation and severity of delusions and hallucinations. However, there have been methodological flaws in many of these studies as they used a general measure of dissociation that includes aspects of amnesia, detachment and more 'normative' dissociation such as absorption in the same overall score. In this context, it is unclear precisely what aspects of dissociative experience were associated with psychosis. More recently, a few studies have specifically investigated depersonalisation experiences in psychosis. For example, in a study of 147 inpatients with a diagnosis of schizophrenia, 17% were found to meet threshold criteria for DPD Similarly, studies examining depersonalisation symptoms in schizophrenia suggest that depersonalisation may be more common in those experiencing hallucinations, compared to those with delusions only, and when present are associated with more severe psychotic symptoms.[26-28]. However, this is still an emerging field of enquiry perhaps in part due to the 'diagnostic overshadowing' of psychosis. In this context, there is only a limited understanding of both the rates of DPD and the phenomenology of depersonalisation in psychosis.

Depersonalisation – an anomalous experience in psychosis?

One potential understanding of depersonalisation in psychosis is of depersonalisation symptoms as an anomalous experience that are interpreted in a distressing manner. In the Cognitive Behavioural Therapy (CBT) model of DPD (Hunter et al., 2003), catastrophic appraisals of transient depersonalisation experiences (such as of having damaged one's brain, or of incipient 'madness') serve to exacerbate and maintain symptoms. Similarly, in cognitive models of psychosis (e.g.[29, 30], appraisals of anomalous experiences as personally relevant, threatening and/or attributed to an external cause are proposed to contribute to the

development of psychotic symptoms Depersonalisation symptoms could be considered a type of anomalous experience [23, 28], and although to the authors' knowledge there are no empirical studies which have explored the appraisals of depersonalisation symptoms in those with psychosis, and in particular whether these symptoms might give rise to psychotic explanations in the absence of any alternative explanation for these phenomena, it may be that this could be a factor that precipitates, and/or maintains, psychosis.
A study of CBT for DPD [31] focused on generating less threatening explanations for the depersonalisation symptoms and reducing symptom-focused attention, avoidance and safety behaviours that were identified as maintaining factors. This study showed significant improvements in experience of depersonalisation symptoms, depression and anxiety, with a third of participants no longer meeting threshold for DPD at the end of therapy. It is proposed that a similar approach to depersonalisation symptoms in psychosis might be effective in reducing the distress associated depersonalisation and may have a secondary impact of psychotic symptoms. This approach is in line with the 'causal-interventionist' approach [4] which has been proposed as the way forward for CBT for Psychosis. To the authors' knowledge there are no published studies or trials of interventions for depersonalisation symptoms in psychosis.

Summary and research questions

Depersonalisation symptoms appear to be prevalent in people diagnosed with psychotic disorders and when present, depersonalisation symptoms are linked with more severe psychotic symptoms. It is likely that negative appraisals of these anomalous experiences might act to precipitate, maintain and exacerbate psychotic symptoms. CBT has been found to be beneficial in patients with chronic DPD and it would be valuable to ascertain if similar approaches to target depersonalisation symptoms in psychosis would be effective. This study aims to establish the feasibility of a brief CBT-based intervention for depersonalisation symptoms in people diagnosed with a psychotic disorder. The aim of the intervention would be to alter negative attributions and distress associated with depersonalisation experiences through psycho-education, learning coping strategies such as 'grounding', changing attentional biases, and cognitive restructuring techniques to modify appraisals. It is proposed that through reducing distress, in particular, the maintenance cycle associated with depersonalisation will be altered and thus overall depersonalisation experiences reduced, with a possibility of reducing psychotic phenomena in addition.
In this context there are two main research questions:
1. Will it be feasible to deliver a brief intervention for depersonalisation symptoms in individuals with current psychotic symptoms?
2. Will such an intervention be acceptable to individuals who experience current psychotic symptoms?

Method and Design

This study aims to determine the feasibility and acceptability of a brief intervention for depersonalisation symptoms in those with current psychotic symptoms.
The intervention will be evaluated using a single blinded (researcher blinded) randomised controlled trial (RCT) with a treatment as usual control condition. Participants will be assessed at baseline (T1) and then randomised to either the treatment or control arm. Participants randomised to the treatment arm will be offered six sessions of individual therapy delivered over a maximum of 10 weeks (to allow for non-attendance). All participants will be assessed again at a 10 week post-randomisation follow-up assessment.

Aims and objectives

The specific aims of the study are to establish:

- the feasibility of:
    - Recruitment, including eligibility rates and acceptance rates and the randomisation process.

    - delivering a brief CBT intervention for DPD, including attendance and completion rates
- the acceptability of the intervention for participants including estimates of satisfaction and treatment adherence

A secondary aim is to establish estimates of standard deviations for outcomes of depersonalisation symptoms to inform sample size calculations for a future trial.

Participants

We will seek to recruit 30 adults aged 18-70 with current psychotic symptoms, and whose depersonalisation symptoms meet threshold for DPD (i.e., over 75 on the Cambridge Depersonalisation Scale (CDS)).. We will exclude those with: insufficient capacity to provide informed consent; insufficient proficiency in English (spoken and written) to engage in CBT; a primary diagnosis of intellectual disability, head injury, substance misuse or organic cause for psychosis; and those currently engaging in CBT or other psychotherapy.

Power calculation

As this is a feasibility study and the aim is to provide estimates of key parameters for a future trial rather than to power the current study to detect statistically significant differences, an a priori power calculation was not conducted [32]. Instead, we aim to recruit sufficient participants to provide reasonable estimates of study parameters. Based on the feasibility of recruitment, we aim to recruit 30 participants. Two pieces of work enable estimation of the number of patients we would need to screen in order to obtain 30 participants. Published research with a similar sample [28] suggests that approximately 94% of individuals diagnosed with a current psychotic disorder will report at least one depersonalisation symptom, and 60% will experience at least 10 depersonalisation symptoms often. A recently completed research study (Emma Davies, unpublished thesis, 2015) recruiting people with psychosis from the same pools as proposed for this trial suggests that approximately 50% of participants reporting depersonalisation symptoms met criteria for DPD. In this context we are likely to need to screen 60 participants (assuming most individuals will report at least one symptom and 50% will score above our threshold) to obtain our target sample. As it is unlikely that all those contacted via initial letter will respond and/or agree to be screened, we anticipate attempting to contact approximately 100 individuals to be able to screen 60.

Intervention

The intervention is based on the protocol developed for CBT for DPD [31]. The intervention aims to reduce distress associated with depersonalisation symptoms by altering catastrophic attributions through psychoeducation, developing a shared understanding linking depersonalisation symptoms to anxiety and/or past traumas, enhancing coping strategies (including grounding) and cognitive restructuring techniques to modify unhelpful appraisals. It is hypothesized that through reducing distress, in particular, the maintenance cycle associated with depersonalisation will be altered and thus overall depersonalisation symptoms reduced. The intervention will be delivered, in addition to treatment as usual (see below)over six, 60 minute sessions, covering the areas outlined in Figure 1, as appropriate and determined by the individual needs of the participant. Sessions will be conducted at outpatient consulting rooms closest to the participant or their home, depending on participant preference and needs.

The therapy will be delivered by SF, a clinical psychologist in training under the supervision of EH, a consultant clinical psychologist and developer of the cognitive model of DPD [20]. In order to ensure the best delivery of the intervention, the therapist (SF) will be trained by EH. Regular supervision through the intervention period of the study will be provided by EH. In addition, to ensure the competence in CBT and fidelity of the intervention a random selection of 10% audio recordings of intervention sessions will be rated by EH using a well-established adherence measure of CBT [33] and a measure designed at the start of the study to capture fidelity to the depersonalisation protocol.

Treatment as usual control condition

For most participants, the treatment as usual will involve regular contact with a care coordinator, medication and regular reviews with a psychiatrist as provided for under the Care Programme Approach (CPA –[34]).

[Figure 1 – Components of the intervention – about here]

Procedure

Eligible participants will be recruited from a secondary care mental health trust in South London (SLaM), and will include community mental health teams, psychological therapies services and research registers.

Potential participants identified from the sources above will be sent a letter of invitation and study information in the post. .The letter will provide detail of how to contact the researcher should they be interested. If after one week, there has been no contact from the participant, the first author will telephone them, answer any questions they may have about the study, and offer an opportunity to be screened for eligibility. This screening interview ask questions about current experiences of hallucinations and paranoia or other delusions and will determine whether they are likely to meet criteria for diagnosis of DPD using the Cambridge Depersonalisation Scale [35]. Participants passing this initial screen will then be invited to a face to face interview with a researcher and be invited to provide informed consent to participate in the study before participating in the baseline assessment

All assessments will be conducted by an independent research assistant, trained in the administration of measures and who will remain blind to treatment allocation; maintenance of blinding will be collected at outcome assessment. After the completion of the follow-up interview, researchers will be unblinded and will re-contact those who received the intervention to assess satisfaction with and acceptability of the intervention. See Figure 2 for the trial flow-chart.

Randomisation

An online randomisation service will be used to allocate participants to either the intervention group or control. Randomisation will use randomly permuted blocks to ensure equal allocation to each group. After the baseline interview, the first author will enter the participant's details into the online service and will receive an automatic email which details the allocation of the participant. The first author will then contact the participant to alert them of their allocation and if the CBT/active intervention group, will arrange first therapy session. The RA will be kept blinded to the allocation to reduce bias.

[Figure 2: Trial Flowchart – about here]

Data collection

The primary outcomes of this trial are the estimates of feasibility and acceptability.

To establish the feasibility of conducting a future trial, the following data will be collected throughout the recruitment and intervention process:

- Referral (number of participants referred to the study)
- Eligibility rates (number of referred and approached participants who meet study entrance criteria).
- Acceptance rates (number of participants consenting to the study) and reasons for study refusals.
- Participant attendance rates at sessions and duration of intervention (i.e., number of weeks taken to attend six sessions)
- Data attrition (proportion of outcome data obtained)
- Feasibility of randomisation process and (maintenance of researcher blindness to treatment allocation.)
- Therapist competence, CBT fidelity, and CBT for DPD.

To establish the acceptability of the intervention, in addition to the data above, attrition rates (number of treatment sessions completed by participants, number of therapy drop outs (i.e.,

completing two or fewer sessions) and percent of homework tasks completed) will be collected throughout the intervention

After the follow-up interview is completed and scored, researchers will be unblinded and all intervention participants will be interviewed about their impressions of the intervention. The interview will collect data on their impressions of and satisfaction with the intervention using questions based on the Satisfaction of Therapy Questionnaire [36], altered to capture aspects of improvement/satisfaction related to depersonalisation symptoms. Participants will be asked to rate on a five point likert scales:

- their expectations and actual progress made on dealing with depersonalisation
- their level of satisfaction with the therapy, therapist, tasks between therapy
- the extent to which they gained new skills and knowledge during the intervention
- their relationship to the therapist including therapist competence, sympathy, caring nature, supportiveness.

There will be four additional open questions to determine the aspects of the intervention the participants found most and least helpful, their views on whether the intervention met their expectations overall, and an opportunity to make any other comments

Clinical data

Clinical and demographic data will be collected at baseline interview and will include sex, age, ethnicity, marital status, education, employment status, medication use, age of onset of both DP/DR and psychotic symptoms, current clinical diagnosis, and past experience of cognitive behavioural therapy or other psychotherapeutic approaches. Data will be collected at baseline assessment and at an outcome interview at ten weeks.

Secondary, clinical outcome data will be collected to estimate key parameters to inform future trial design. Outcomes include depersonalisation, psychotic, depression and anxiety symptoms, as well as screening for post-traumatic stress disorder. .

- Cambridge Depersonalisation Scale (CDS; [35]. The CDS is a 29 item scale that measures the severity of trait depersonalisation symptoms over the preceding six months. For each item, frequency (likert scale 0=never to 4=all the time) and duration (likert scale 1=few seconds to 6=more than a week) are collected; each item maximum is therefore 10. A total scale score is the sum of each item, with a maximum of 290. Scores greater than 70 have been shown to reliably predict a clinical diagnosis of DPD using DSM criteria. . In order to measure change, the wording of the trait CDS will be changed to measure the severity of DP/DR symptoms over the preceding month. The level of distress, preoccupation, impairment and understanding of depersonalisation symptoms will also be collected.
- The Psychotic Symptom Rating Scale (PSYRATS; [37]. The PSYRATS will be used to monitor changes in psychotic symptomatology between baseline assessment and outcome interview. The PSYRATS consists of two subscales measuring the presence and typology, beliefs/conviction, distress and disruption associated with auditory hallucinations and delusions. The auditory hallucination (AH) subscale has 11 items and the delusions (DELS) subscale has six items. All items are scored between 0 and 4. For example, for item 1 in the AH scale 0=voices are not present to 4 voices are present continuously… The maximum score for the AH and DELs subscales are 44 and 24 respectively.
- Beck Depression Inventory (BDI; [38]). The BDI-II is a 21 item self-report scale, rated on a 4 point Likert scale (0= symptom not present to 3 = symptom present with significant distress/impairment) measuring common symptoms of depression. Total scores range from 0 to 63. Total scores of less than 13 indicate minimal depression, scores 14-19 indicate mild depression, scores 20-28 indicated moderate depression and scores above 29 indicate severe depression.
- Beck Anxiety Inventory (BAI; [39]). The BAI is a 21 item self-report scale with the same scoring. Total scores are interpreted as follows: 0-9 indicates minimal anxiety; 10-16 indicates mild anxiety; 17-29 indicates moderate anxiety; and 30-63 indicates severe anxiety.
- Post-traumatic Diagnosis Scale (PDS ; [40]. The PDS has 49 items including a checklist of potentially traumatising events and an indication of the distress, intrusive thoughts, avoidance

and hyperarousal in the last month. There is a total score ranging from 0 to 51 with 1-10 considered 'mild', 11-20 'moderate, 21-35 moderate to severe and greater than 36 severe.

- Structured clinical interview for DSM-IV dissociative disorders (SCID-D)[41]. It includes nine items addressing the presence and frequency of common depersonalisation symptoms, the duration and frequency of the most severe instance of depersonalisation, functional impairment, distress and exclusionary criteria such as: not the result of drugs, organic issues and does not occur exclusively in the context of other psychiatric condition such as psychosis.

Analyses

As this is a feasibility study, the analyses will be primarily descriptive aiming to provide estimates of feasibility parameters and to inform power calculations for a future trial. Descriptions of continuous data, including clinical data and sample characteristics, will be provided using mean, SD, median and IQR. Frequencies and proportions will be used to analyse categorical variables.

Feasibility of trial procedures will be assessed using proportions and their estimated 95% confidence intervals (CIs) for rates of: referral (number of referrals divided by total approached); eligibility (number of eligible participants divided by number screened and number approached); acceptance (number screened divided by number approached and number consented divided by number approached); attendance (average number of treatment sessions attended and average number of weeks taken to complete intervention); data attrition (proportion of outcome data obtained); and maintenance of blinding (incidences of unblinding of researcher divided by number of follow-up assessments). Therapist competence will be presented as proportion with estimated 95% confidence intervals for the total score divided by applicable items on the CTRS and DPD fidelity measure. Acceptability of trial procedures will be assessed using proportions and their estimated 95% confidence intervals for rates of: attrition (proportion of treatment sessions completed and of homework tasks completed), expectations and actual progress (proportion rating at each point on likert scale) and satisfaction with therapy, therapist and tasks (proportion rating at each point on likert scale).

Population variances will be determined using the upper 80th nonparametric bootstrap percentile of confidence intervals around the estimates [42].

Adverse events

We do not anticipate any serious adverse events as a result of this psychological intervention, but all adverse events will be collected, discussed in supervision and reported to regulatory authorities as required.

Ethical approval and oversight

The trial has received approval from the Camberwell and St Giles Research and Ethics Committee (ref: 15/L0/0081) and is registered with ClinicalTrials.gov (ClinicalTrials.gov Identifier: NCT02427542).

Good Clinical Practice Guidelines for research trials (such as data storage and administrative functions) and CONSORT guidelines [43]for reporting will be fully adhered to. As this is a small-scale feasibility study, formal trial steering and data monitoring committees will not be convened. Rather, academic supervisors will ensure the running of the trial adheres to Good Clinical Practice Guidelines and local policies.

Discussion

This paper presents the protocol for a study to assess the feasibility and acceptability of a brief Cognitive Behavioural Therapy intervention for individuals who have depersonalisation symptoms in the context of psychotic symptoms. The intervention, based on that developed for DPD, will focus on providing an individual cognitive formulation and explanation of depersonalisation experiences and developing behavioural, cognitive, emotional regulation and thinking processing changes or strategies to decrease the associated distress. The findings from this study will help estimate the key parameters for a future trial.

Trial Status

Recruitment to the trial is underway and is due to be completed in March 2016. The first participant was randomised in June 2015.

List of abbreviations used
BAI – Beck Anxiety Inventory
BDI – Beck Depression Inventory
CBT – Cognitive Behavioural Therapy
CDS – Cambridge Depersonalisation Scale
CI – Confidence Intervals
DPD – Depersonalisation Disorder
PDS – Post-traumatic Diagnosis Scale
PSYRATS – The Psychotic Symptom Rating Scale
PTSD – Post Traumatic Stress Disorder
SCID-D – Structured clinical interview for DSM-IV dissociative disorders
UK – United Kingdom
USA – United States of America
Competing interests
The authors declare that they have no competing interests.

Authors' contributions
SF, EH, EP, AD designed the study. SF recruited participants to the study and delivered the intervention. MA conducted baseline and follow-up interviews. All authors contributed to the writing of this manuscript.
Acknowledgements
This study was completed as part of the first authors' Doctorate in Clinical Psychology qualification.

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Appendix C: Ethics Approval

NHS
Health Research Authority

NRES Committee London - Camberwell St Giles
Level 3, Block B
Whitefriars
Lewins Mead
Bristol
BS1 2NT

Telephone: 0117 3421391

25 February 2015

Dr Simone Farrelly
P078 Institute of Psychiatry, Psychology and Neuroscience
King's College London
Denmark Hill
SE5 8AF

Dear Dr Farrelly

Study title:	**A brief Cognitive Behavioural Therapy (CBT) intervention for depersonalisation/derealisation in psychosis: a feasibility study**
REC reference:	**15/LO/0081**
IRAS project ID:	**166784**

Thank you for your letter of 8th February 2015, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a Sub-Committee of the REC. A list of the Sub-Committee members is attached.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Assistant, Miss Elizabeth Hearn, nrescommittee.london-camberwellstgiles@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Appendix D: Competence and Fidelity measure

Patient ID	
Session number	
Session Date	
Rating Date:	

CBT skills assessed using CTS-R

Scoring 0-6

N/A – Absent, but not necessary at this stage
0 absence of feature, or highly inappropriate performance
1 inappropriate performance, with major problems evident
2 evidence of competence, but numerous problems and lack of consistency
3 competent, but some problems and/or inconsistencies
4 good features, but minor problems and/or inconsistencies
5 very good features, minimal problems and/or inconsistencies
6 excellent performance, even in the face of patient difficulties

Item	**Rating**
1. Agenda	
2. Feedback	
3. Understanding	
4. Interpersonal effectiveness	
5. Collaboration	
6. Pacing and efficient use of time	
7. Guided discovery	
8. Focusing on key behaviours and cognitions	
9. Strategy for change	
10. Application of cognitive behavioural techniques	
11. Homework	
Overall Sum	
Average (of applicable items)	

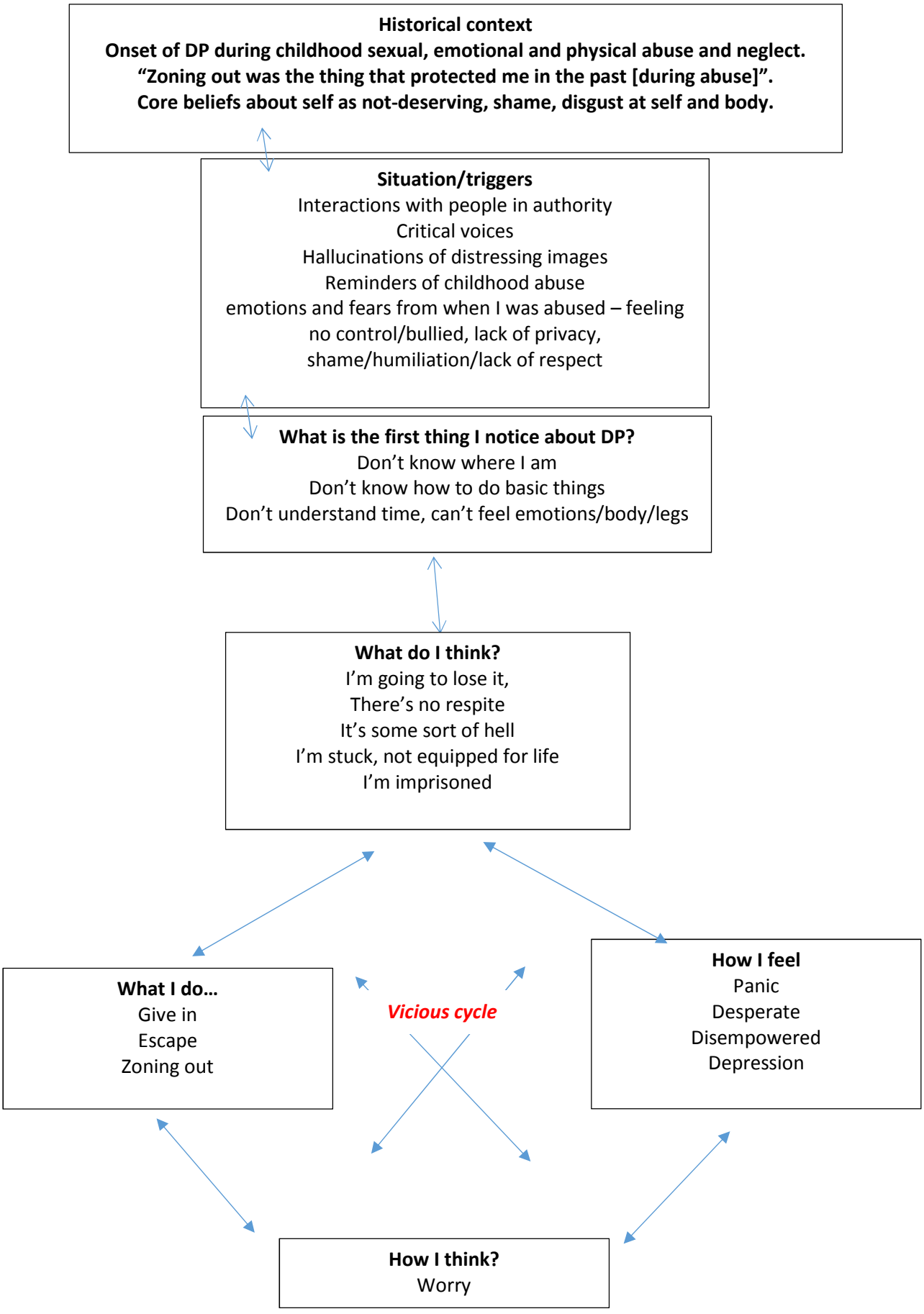
DP protocol fidelity

Scoring 0-6

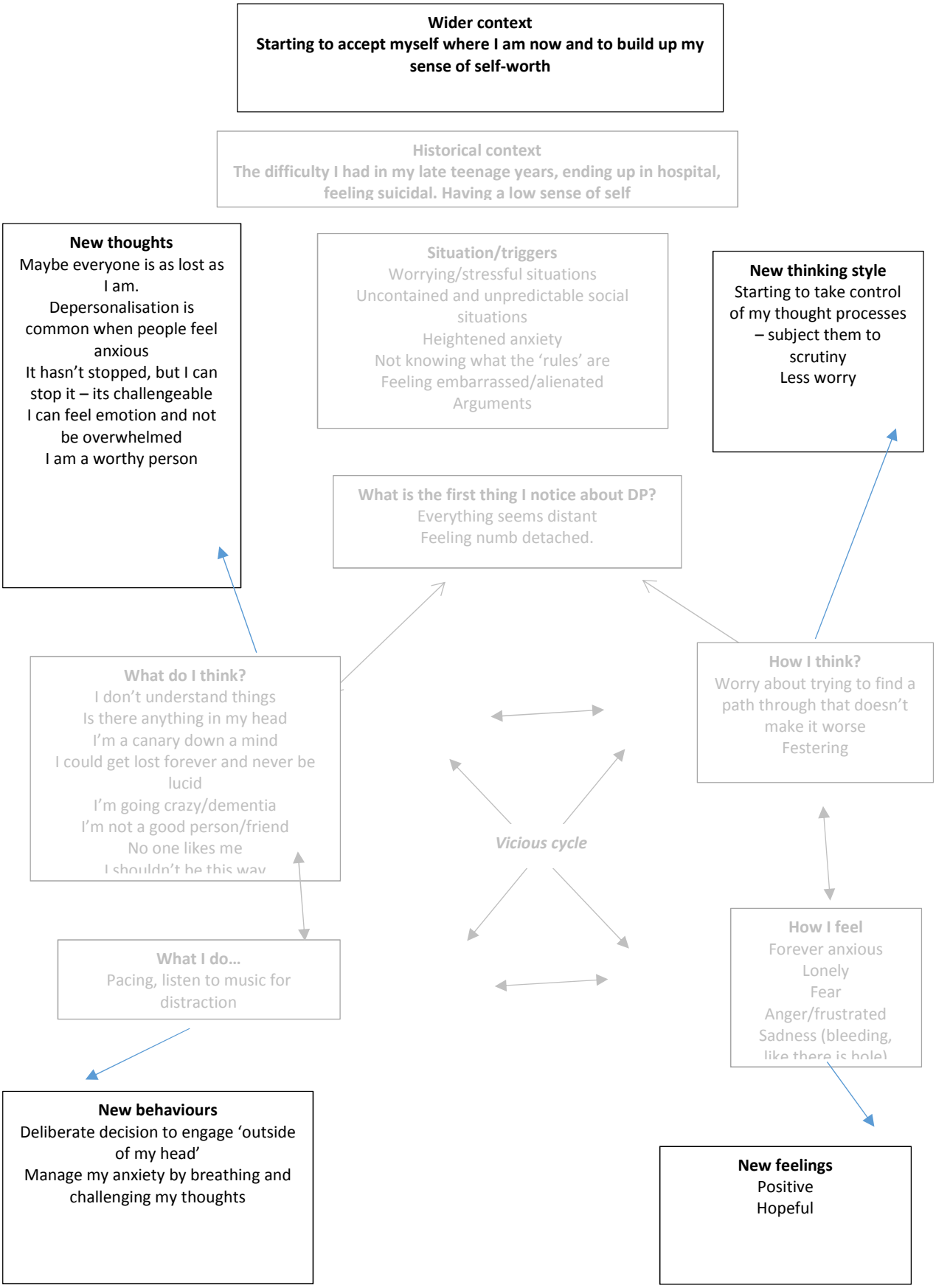
N/A – Absent, but not necessary at this stage
0 absence of feature, or highly inappropriate performance
1 inappropriate performance, with major problems evident
2 evidence of competence, but numerous problems and lack of consistency
3 competent, but some problems and/or inconsistencies
4 good features, but minor problems and/or inconsistencies
5 very good features, minimal problems and/or inconsistencies
6 excellent performance, even in the face of patient difficulties

DP protocol components	**Specific elements**	**Rating**
Psycho-education / shared formulation	Psycho-education about DP/DR	
	individualised CBT shared formulations for current pattern of DP/DR (including assessing factors which influence fluctuations in severity)	
Behavioural	Diary use - analysing what makes it better and worse	
	Planning environmental / behavioural changes to manipulate and manage DP/DR symptoms	
Emotion regulation	Examining the role of emotions associated with DP/DR	
	Identifying anxiety/ distress management strategies.	
	Psycho-education about grounding strategies and practice of these	
Cognitive	Identifying unhelpful thoughts about DP/DR	
	Cognitive restructuring - Reviewing the evidence for and against unhelpful DP/DR related thoughts	
Thinking processing	Psycho-education about role of attention in maintaining DP/DR	
	Reducing hyper-vigilance / symptom monitoring / checking behaviours	
	Acceptance and mindfulness approaches to DP/DR	
Review and relapse prevention	Summary of what has been learnt from the sessions	
	DP/DR Action plan	
	Overall Sum	
	Average (of applicable items)	

Appendix E: Anonymised shared formulation #1



Appendix F: Anonymised Shared Formulation #2 (Showing original and 'Action Plan')



Appendix G: Service Evaluation Project- Application for CAG approvals

South London and Maudsley NHS

NHS Trust

Audit & Service Evaluation Project Proposal Form (PPF)

Should you require any assistance with completing this proforma, please contact your Local Clinical Audit Project Officer or for Trustwide audits the Clinical Audit & Effectiveness Team (details are available on the SLaM Clinical Audit & Effectiveness Internet Site). For local team based, directorate or CAG- wide projects please send your completed PPF to your local CG Project Manager/Officer, for ethical approval. For Trust wide projects please send your completed PPF to the Corporate Audit Dept (All relevant contact details are on the SLaM Clinical Audit & Effectiveness Team Intranet site).

1(a) Project lead details: Dr Juliana Onwumere	
Name: Juliana	**Job title: Consultant Clinical Psychologist**
Work Address: Fitzmary II Ward	
Telephone: 0203 228 4274/5	**E-mail:Juliana.onwumere@slam.nhs.uk**
1(b) Project Title: What are the levels of cognitive functioning difficulties in patients with refractory psychosis admitted to the Fitzmary II ward	
Project start date: November 2013	**Project end date: November 2014**
1(c) Please tick ✓ one box: Is this project a:	
Clinical Audit (e.g. Measures a standard) ☐	**A Service Evaluation (e.g. Patient Survey)** ☐
1(d) Which CQC Standards does this audit relate to: Please tick ✓ relevant boxes:	
Involvement and Information ☐	Personalised Care, Treatment and Support ☐
Safeguarding and Safety ☐	Suitability of Staffing ☐
Quality Management ☐	Suitability of Management ☐
2 (a) Overall project aim, e.g., purpose of the audit, are changes achievable etc. The main aim of the project is to document the number of inpatients with cognitive functioning difficulties on Fitzmary II and to use this data to inform service planning decisions about the delivery of ward based group interventions to support patients to cope with the impact on their day to day functioning.	

2(b) Specific objectives. What are the audit guidelines or standards? The definition of a clinical audit is that it compares practice to agreed standards such as those defined in NICE guidelines and clinical policies, protocols and procedures. Please state the source of your standards or criteria

Cognitive functioning comprises a broad range of processes including memory, executive functioning, attention and processing speed. Disturbances in any one of these domains are likely to impact on an individual's day-to - day functioning. Cognitive functioning difficulties in service users with psychosis (e.g. problems with executive functions) are positively associated with poorer outcomes such as reduced levels of occupational and social functioning, and quality of life. These difficulties can also negatively impact on a patient's ability to engage in treatment programmes and progress with their individual recovery.

The purpose of the current service related project is to document the proportion of inpatients on FM2 exhibiting cognitive impairments and for this data to inform future service planning.

Using assessment measures routinely available within the Fitzmary II ward, a patient's level of cognitive functioning will be recorded as part of the broad assessments that patients undergo on the unit. Data will also be collected on the length of assessment and patient engagement and satisfaction in the overall assessment process.

2 (c) In which ways do you think the project will improve patient care / outcomes?

The project should provide valuable data in characterising the nature of cognitive difficulties in our inpatient group and determining the approximate level of need for providing ward based interventions that specifically target cognitive problems.

3 (a) Type of project Please Tick ✓ where appropriate – more than one might apply

(A) National	☐	Re-audit	☐	High risk	☐
(B) Trust-wide	☐	Interface	☐	High volume	☐
(C) Directorate/CAG	☐X	Multidisciplinary	☐	Issue of local concern	☐
(D) Team based	☐	Uni-disciplinary	☐	Wide variation in practice	☐

Other (please state):

3 (b) Does your project criteria apply to any of the following? If so Please Tick ✓ where appropriate

NHS Litigation Authority (NHSLA)	☐	Risk Register (high risk)	☐	Complaints	☐
Trust Policy	☐	CQC	☐	Patient Survey	☐
NICE Guidance	☐	Business Plan	☐	DOH Policy Implementation Guidance	☐
National Audit	☐	Improving working lives	☐	Issue of local concern	☐X

Any Other (please state)

4(a) Who will be on the audit steering group?

Elizabeth Mott (Ward Manager); Dr Fiona Gaughran (Lead Consultant Psychiatrist); Tanya Greenland (Clinical Service Lead); Lidia Yaguez (Clinical Neuropsychologist, Kings College Hospital; Academic Director; Doctorate in Clinical Psychology, KCL, Alison McGourty (Senior Psychologist); Juliana Onwumere (Clinical Psychologist)

4(b) What consideration has been given to the involvement of patients, carers or the public?

☐ Full user involvement at all stages of the audit

☐ Partial user involvement : please state what stages _____

X☐ No user involvement (please state why not) _____Not required at this stage_____

5. Information Governance Requirements: When planning an audit, each project should be evaluated whether **Personal Identifiable Information (PII)** needs to be used. Unless there is genuine justification, all PII should be taken out to effectively anonymise the data for audit and research purposes. If you are unsure or need guidance and advice, please contact: dataprotectionoffice@slam.nhs.uk **Personal identifiable information (PII)** is any piece of information which can potentially be used to uniquely identify, contact, or locate an individual including name, address, full post code, date of birth, gender, ethnicity, NHS number, photographs, videos, audio-tapes etc.

5(a) Source of data	☐ **Patient** ☐ Staff ☐Other (please specify)	
5(b) Method of collection	☐ **Direct from subjects** (interview or questionnaire) The data will be collated from routine assessment measures. ☐ From an information system (e.g. ePJS) ☐ Other (please specify)	
5(c) Will the data be fully anonymised?	☐ **Yes**	☐ No
	If yes, how:	If no, why not:
		If no, which personal identifiers will be used
		If no, have you made arrangements to gain consent from data subjects? ☐ Yes ☐ No
5(d) Where will the data be recorded?	☐ **Manual forms** ☐ **Electronic forms** ☐ Electronic spreadsheet ☐ Electronic database In accordance with patient data collected in the service, all assessment data will be kept in patient hard files on the ward and the electronic note system (epjs)	☐ Other (please specify)
5(e) Where will it be stored?	x☐ **In a locked cabinet** x☐ **In a locked office** x☐ **On shared folder on SLaM network** ☐ On secure network outside SLaM	☐ Other (please specify)
5(f) Additional security arrangements	x☐ **Password protected** x☐ **Encrypted** x☐ **Login required**	☐ Other (please specify)
5(g) Will the data be transferred outside SLaM	x☐ **Yes, in an anonymised format** ☐ No ☐ Yes, with identifiers **You must contact dataprotectionoffice@slam.nhs.uk to register any transfer of personal identifiable information in advance.**	
	If yes, how ☐ **Physically in person** ☐ Physically using a secure courier ☐ Physically using registered mail services ☐ Electronically using nhs.net email ☐ Electronically using encrypted portable media ☐ Other (please specify)	
5(h) Will the data leave the EU?	☐ Yes (Please specify where and why)	☐ **x No**

5(i) Information Asset Owner: This is the person responsible for the data	Name:	Juliana Onwumere
	Job title:	Consultant Clinical Psychologist
	CAG:	Psychosis
	Organisation:	South London and Maudsley NHS Trust

6) Data Collection (please answer ALL of the following questions)	
6(a) Where from? Audit data can be collected from many sources including: medical records/epjs, nursing records, patients, clinicians, and other staff.	Inpatients
6(b) How? The data source will obviously influence the method used to collect data. E.g. If data is to be collected from patients the most appropriate method might be a survey or interview. If data is to be collected from medical records, it will be necessary to design a data collection proforma. Questionnaires, one-to-one interview, focus groups.	Cognitive assessments – including pen and paper tests, questions.
6 (c) How much? As a guide, a sample should include a minimum of 30 cases and perhaps as many as 100. If the initial sample proves to be too small to provide data necessary, it can be added later.	Inpatients admitted to the Fitzmary II ward during the period November 2012-November 2013. The ward has 23 beds and patients approximate length of stay is 6-9 months.
6 (d) Who? Who will be responsible for collecting the data? Ensure the person identified understands their role.	Doctorate in Clinical Psychology trainee
6(e) Timescale? Over what period is the data to be collected?	Inpatients admitted to the Fitzmary II ward during the period November 2012-November 2013
6 (f) Pilot Audit? Y/N In most cases it will be advisable to carry out a pilot to check quality of questionnaire, length of interview, etc. In light of the pilot audit findings, modifications to any of the above may need to be made.	Not applicable

7(a) Who will be affected by the outcomes of this project? The inpatients from Fiztmary II ward
7(b) With whom and where will the final report be shared? i.e. Local CG Committees, CAEC? The results will be presented as part of a service related report for the Doctorate in Clinical Psychology trainee and submitted in part fulfilment of their course. The report will also be shared with ward staff and the local CG committee.
7(c) Who will take responsibility for disseminating the results of the project and following through recommendations? And how and when will the recommendations be evaluated, monitored and reviewed? Doctorate in Clinical Psychology trainee will prepare a report. Juliana Onwumere will lead on disseminating the results and the monitoring, review and evaluation of recommendations.
All completed projects must be followed up with a completed recommendations monitoring form, available on the SLaM Clinical Audit & Effectiveness Intranet sitehttp://sites.intranet.slam.nhs.uk/cg/default.aspx

8) Audit Approval

8(a) Information Governance Approval: IG Audit approval given by: _____ Date Audit IG approved:_____	**8(b) Clinical Audit Ethical approval given by:** Clinical Audit Ethical approval given by: _____ Date of Clinical Audit Committee approval:_____ ☐ Clinical Effectiveness and Audit Committee ☐ Drugs and Therapeutics Committee ☐ Directorate Clinical Governance/Audit Committee

9. Audit Timeframe Planning Table (Optional)

Activity	Start Date	End Date	Responsible	Date Achieved
Literature Search				
Standard Setting				
Project Design (methodology)				
Information Governance				
Pilot				
Data Collection				
Data Input and Analysis				
Report Writing				
Agree Recommendations				
Implementation of recommendations				
Monitoring of recommendations				

Appendix H: CAG approval email

From: Obi, Lucky <Lucky.Obi@slam.nhs.uk>
Sent: 08 October 2013 18:20
To: Onwumere, Juliana
Cc: McKenzie, Sandra
Subject: NEW PPF FOR APPROVAL

Dear Juliana,
Your proposed project has been approved; you may wish to start now.
Please remember to send this department a copy of your report and recommendation on completion.
I have attached a Template report to assist you.
Good luck

Lucky Obi
Governance Project Officer
Inpatient & Complex Care Pathway
Psychosis CAG
South London and Maudsley NHS Foundation Trust
Felix Post Unit | Maudsley Hospital |Denmark Hill | London | SE5 8RG |
Telephone: 020 3228 6389 Internal: 86389
Fax: 020 3228 2643

Appendix I: Service Evaluation Project - Service user questionnaire

Participant views on the acceptability of the assessment session

Name _____

ID number _____

Date of assessment _____

How enjoyable did you find the assessment session? Please circle one response.

1	2	3	4	5
Not at all enjoyable		Neutral		Very enjoyable

How satisfied are you with the assessment session? Please circle one response.

1	2	3	4	5
Not at all satisfied		Neutral		Very satisfied

How stressful did you find the session? Please circle one response.

1	2	3	4	5
Not at all stressful		Neutral		Very stressful

How difficult did you find it? Please circle one response.

1	2	3	4	5
Not at all difficult		Neutral		Very difficult

Would you be happy to do a similar assessment session again?
Yes / No / Don't Know

What was one good thing about the session?

What was one thing that could have been improved
Any other comments? (e.g., how we could improve the session, what you did or did not like)

Appendix J: Service Evaluation Project - Professionals questionnaire

Clinical/counselling psychologist's views on usefulness of neuropsychological testing on Fitzmary II ward

As part of the service related project to evaluate the cognitive functioning needs of inpatients on Fitzmary II Ward, I would be grateful if you could answer the following questions about the neuropsychological assessments on the ward. There are not right or wrong answers. Thanking you in advance for your time.

1. How many service users on your case load had completed a neuropsychological assessment?

2. How helpful was the information gleaned from the assessments?
   (Please place a cross in the cell below the relevant number)

Extremely unhelpful				**Neutral**					**Extremely helpful**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Please explain your response

3. The assessment battery included the Test of Premorbid Functioning, the RBANs and a test of executive functioning (Trial Making Test). How helpful did you find the assessment battery? (*Please place a cross in the cell below the relevant number)*

Extremely unhelpful				**Neutral**					**Extremely helpful**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

4. What changes (if any at all) would you like to see made to the current battery?

Overall impressions

5. How helpful for your work do you think neuropsychological testing can be?
   (Please place a cross in the cell below the relevant number)

Extremely unhelpful				**Neutral**					**Extremely helpful**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Please explain your response

6. Would you recommend routine neuropsychological testing for inpatients on FM2?
   - o Yes/no/ unsure *(please delete not applicable responses)*

Please explain your response

7. Are there any recommendations you would make to improving process of neuropsychological testing on the ward?

8. Please feel free to make any other comments

Thank-you for taking the time to complete this survey!

South London and Maudsley NHS
NHS Foundation Trust

PRIVATE AND CONFIDENTIAL

National Psychosis Unit
Bethlem Royal Hospital
Monks Orchard Road, Beckenham, BR3

NEUROPSYCHOLOGICAL REPORT

Name: XXX
Dob: XXX
Age: 33
Date of testing: 30/01/2014
Location: Fitzmary II Ward

DATE OF ADMISSION: XXX
DIAGNOSIS: Schizophrenia
FIRST PRESENTATION TO MENTAL HEALTH SERVICES: XXX
EDUCATION: GCSE

HISTORY

XXX was admitted to the National Psychosis Unit, under a Section 3 of the Mental Health Act to ascertain optimal pharmacological interventions. XXX was admitted with a previous history of periods of decreased responsiveness that were increasing in frequency, occasional collapse, bizarre behaviour and irritability. These periods had been described as possible fits or catatonia and no underlying physical causes or triggers had been identified.

In terms of educational and social history, XXX previous records report that he performed well at school and achieved eight GCSEs at secondary school (3 As and 5 Cs). However, shortly after his GSCEs XXX began to struggle academically. He left school at 16 years of age. He attended a local college for a brief period to study for A levels, and subsequently dropped out of college and all formal education. XXX worked briefly in restaurants up until the age of 18/19. His first presentation to mental health services was at age 19 years.

ASSESSMENT MEASURES

- Test of Premorbid Functioning (TOPF) – provides an estimate of premorbid IQ
- Repeatable Battery for the Assessment of Neurological Status (RBANs) which includes immediate and delayed memory, attention, language, visuo-spatial perception and an overall estimate of functioning.
- Trail Making Test – a test of processing speed, rule detection and set shifting.

BEHAVIOUR DURING ASSESSMENT

XXX speech was slurred and his words were often not well articulated. However as he seemed to relax into the assessment session his speech slowed down a little and his words were more clearly enunciated. His hands were noticeably shaky, which affected his ability to complete tasks with fine motor skills components. However, he applied himself to all of the tasks and appeared to enjoy aspects of the testing situation. When the assessment was complete, he left the room quite quickly and did not engage in any non-essential conversation. XXX said that he did not want to find out his results on the tests.

PREMORBID INTELLECTUAL FUNCTIONING

The Test of Premorbid Functioning (TOPF) estimated XXX optimal intellectual functioning at 92 – which is within the normal range.

RBANS

Immediate memory index

The tasks involved in this index are a measure of learning complex and simple verbal information. XXX scored 65 which placed him in the 1st percentile, indicating significant impairment in learning new verbal information. XXX did show improvement in recalling both the list of unrelated words (from 3 on first trial to 8 on final trial) and story (from 4 in Trial 1 to 8 in Trial 2) indicating improved recollection and learning after verbal repetition.

Visuospatial/constructional

The tasks involved in this index measure basic visuospatial perception and the ability to copy a design from a model. XXX performed well on this index (score 84), suggesting a relative strength in processing and using visuospatial information. While he was able to correctly perceive and copy the figure, he lost points by not attending to the finer details (for example joining lines); however this may have been affected by the shaking in his hands.

Language

This index is a measure of expressive language function and it involves the ability to name objects presented visually and to retrieve and express verbally the names of as many fruit and vegetables as possible in a 60 second period. Overall, XXX performed well on this index: he scored 85, which places him in the 16th percentile. XXX correctly identified all the pictures on the Picture Naming task, placing him in the 51-75th percentile on this subtest. On the Verbal Fluency task, he was able to name 16 fruits or vegetables in the 60 seconds allowed, achieving a scaled score of 4. At times, it was difficult to understand his pronunciation of the words as the task required him to speak quickly.

Attention

This index is a measure of auditory registration, visual scanning and processing speed. XXX scored 75 on this index (5th percentile). On the Digit Span task, XXX was able to successfully remember and repeat six numbers, achieving a scaled score of 8. He was able to recall the next trial of 7 numbers but not in the correct order. XXX also performed well on the Coding task, which requires drawing symbols associated with a specific number, however his lack of fine motor skills hindered his speed in this task.

Delayed memory

The tasks in this index are a measure of delayed recall and recognition of verbal and visual information. XXX scored 85 which placed him in 16th percentile indicating some

difficulty retrieving information from long term memory stores. He had difficulty drawing the complex figure, in part due to his fine motor skill deficits, and recalling the unrelated list of words. He performed particularly well on the list recognition task, correctly recognising all of both target and distracter words.

Overall estimate of current functioning

The RBANs total scale score estimate of current functioning is 73, which is in borderline range and below Mr Rollinson's predicted optimal level of functioning.

EXECUTIVE FUNCTIONS

XXX completed both trials of the Trail Making Test. He took 59 seconds to complete the first task, involving drawing a line between consecutive numbers. This time placed him lower than the 10th percentile, indicating deficits in processing speed. The second trial involves switching between numbers and letters, and therefore requires an ability to inhibit responses and switch attention; durations of greater than 2.5 times the first trial indicate significant impairment. XXX took 112 seconds, indicating no significant impairment in this task.

CONCLUSIONS

XXX is a 33 year old man with 15 year history of severe mental health problems. He is currently functioning below his estimated optimal level. There was a fairly consistent performance across domains with the exception of immediate verbal memory which appears to be a particular difficulty for him. There was, however, evidence of learning in subsequent trials of verbal memory and indeed he had a strong ability to recognise verbal information when prompted after a delay. Furthermore, he performed well on visual based tasks.

Recommendations:

- Due to his difficulties with immediate verbal memory, XXX may benefit from strategies that decrease the load on his verbal working memory, such as:
    - Written reminders of information such as keeping a notebook, a calendar with reminders or using post-it notes.
- XXX's superior performance on tests of delayed recognition compared to recall suggests that he would benefit from some strategies designed to improve his encoding of verbal material, such as:
    - Repetition of verbal information after appropriate intervals.
    - Asking him to repeat back verbal information to ensure understanding and creating opportunities for learning.
    - Practicing 'chunking' of units of information.
    - Attaching meaning to the information that he is trying to remember – such as creating a story or relating it to something that he knows.
- XXX may benefit from more time being allowed for tasks involving fine motor skills.
- As this assessment was conducted during a period of changing treatment, we recommend re-testing once XXX is stabilised or upon discharge from the ward.

Dr Simone Farrelly, Ph.D.
Trainee Clinical Psychologist

Supervised by
Dr. Lidia Yágüez, Ph.D.
C.Psychol and Clinical Neuropsychologist

Neuropsychological Scores Summary

Name: XXX **Dob**: XXX
Age: 33 **Date of testing**: 30/01/2014
Assessed by: Dr Simone Farrelly

General Intellectual Functioning

TOPF
Raw score: 30, Predicted IQ (for WAIS IV): 92

RBANS

Sub-Scale	**Index**	**Percentile**
Immediate Memory	**65**	**1st**
Subtests	*Age Scaled Scores*	
List learning	4	
Story memory	4	
Visuospatial/constructional	**84**	**9-16th**
Subtests	*Age Scaled Scores/percentiles*	
Figure copy	1	
Line Orientation	>75th	
Language	**85**	**16th**
Subtests	*Age Scaled Scores/Percentile*	
Picture Naming	51-75th	
Semantic Fluency	4	
Attention	**75**	**5th**
Subtests	*Age Scaled Scores*	
Digit Span	8	
Coding	4	
Delayed memory	**85**	**16th**
Subtests	*Age Scaled Scores*	
List recall	26-50th	
List recognition	51-75th	
Story Recall	7	
Figure recall	6	
Total Scale	**73**	**2-5th**

Executive Functions

TRAIL MAKING TEST

Trails A	59 sec	(less than 10th percentile)
Trails B	112 sec	(10-25th percentile)